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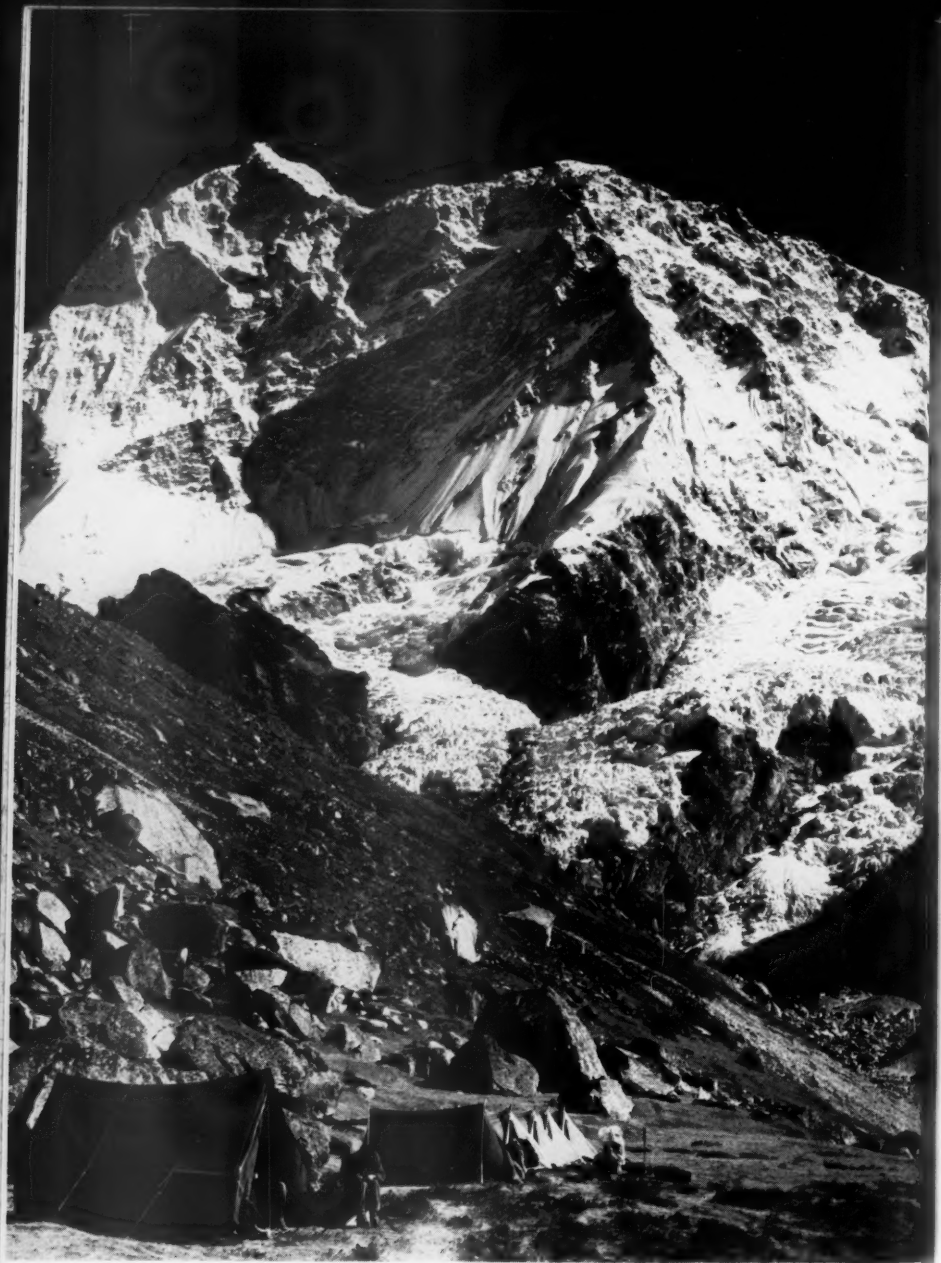


MAKALU FROM BASE CAMP IN BARUN VALLEY
Southeast ridge on right skyline.
Photo, W. Siri

Makalu, 1954

CALIFORNIA HIMALAYAN EXPEDITION

WILLIAM W. DUNMIRE AND WILLIAM UNSOELD

PART I: *Preparations and the March to Base Camp*

FIVE years ago the possibility of organizing an expedition to the Himalaya was but the remotest of dreams to the group of California mountaineers who realized this ambition only last spring. I am certain that among mountaineers we were not alone in our feeling that a strong financial backer, whether it be an individual or an organization, is a minimum requisite for the basis of an expedition, yet there was certainly no good prospect of this kind of support for us. Nevertheless, discussion of that promised land, the Himalaya, increased among certain of our local mountaineers who had had considerable expedition experience in Canada, Alaska, and Peru, and who now wanted a taste of the greatest of all; talk was soon replaced by action when we set up the California Himalayan Committee, whose function was to investigate the possibilities of sending an expedition to one of the Achtausenders.

Our first task was to decide upon an objective and to apply for permission through the State Department to enter the chosen area of operation. Our sights were aimed high. The Everest area already had too much traffic; K2 appeared to be out for political reasons (we were surprised and pleased when we later learned that Houston and Bates had been granted permission); and Kanchenjunga we vetoed because of its notorious history. Little

was known about Makalu except that from a distance it looked difficult, so we applied to the government of Nepal for permission to attempt Dhaulagiri, the fifth highest. This was early in 1952. In six months word came back that permission had been refused because of the priority of the Swiss Expedition, we later learned, and we immediately reapplied, this time for Makalu. One of our biggest difficulties was that we didn't know which parties had been accorded which peaks for what years; a Himalayan coordinating committee would clearly be a boon. We had little reason to hope that our alternative request would now be granted, and we were therefore overjoyed when Will Siri announced at a meeting in late December 1952 that Makalu was legally ours for '54.

All that now remained was to field the expedition. We carefully drew up budgets and estimates of possible income. In those days we naively hoped to finance the venture with a single windfall—through a newspaper syndicate or a motion picture corporation, but we soon realized that no one American firm would be willing to adopt us, even though we could offer the possibility of the world's highest ascent at the time; we would somehow have to raise our estimated $50,000 budget piecemeal. Our Advisory Committee, actually the Executive Committee of the Sierra Club, appealed on our behalf to individuals within the Sierra Club and the American Alpine Club, and the response was most gratifying. Products from local as well as national manufacturers were sought with the promise that the expedition's name could be used for approved promotional activities upon our return; the result was that nearly all our three tons of food and also much of our equipment was donated. By this time the expedition also included a full-fledged scientific program, including biological and physiological phases. The U.S. Air Force was much interested in the latter aspect, so much so, in fact, that they finally agreed to provide transportation for the expedition members to Calcutta and back, certainly the largest single expense on our budget. Even with all this enthusiasm and support from persons and groups outside the expedition, it was not until a month before leaving that we were on sound, though marginal, financial footing, and many a committee meeting was spent devising

schemes to whittle expenditures. We were a determined group and we would go to the Himalaya even if it meant relaying all loads ourselves without Sherpas, using discarded equipment and living on oatmeal. Happily, we did not have to resort to these extremes.

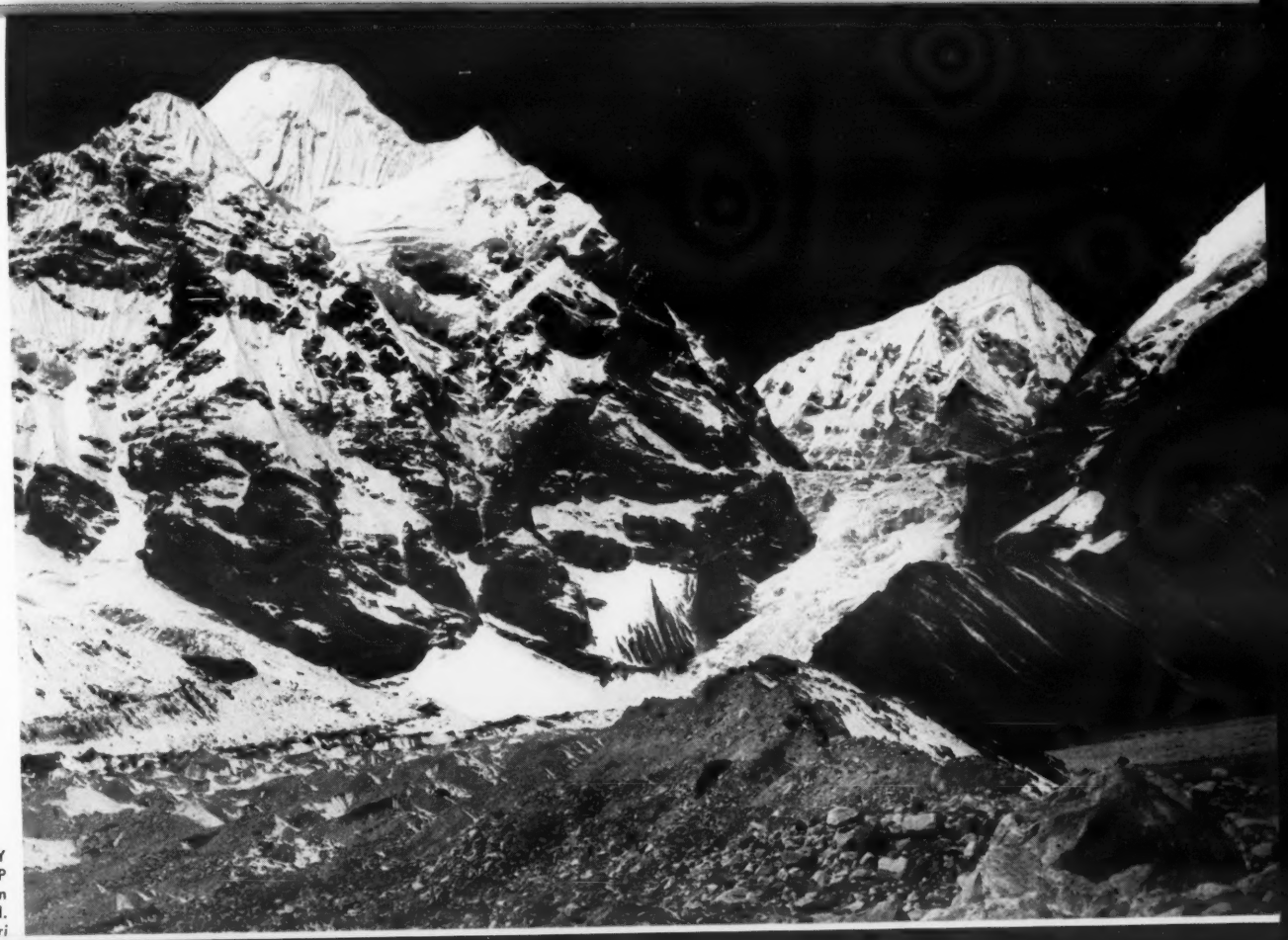
Since none of our members had ever done any really high mountaineering, we had to rely heavily upon what we read of recent Himalayan expeditions in solving our food and equipment problems. Our four-man Food Sub-Committee followed the general rule of providing a simple diet yet one varied enough to satisfy all tastes. Of course liquids were emphasized for the high camps. Our theory that food which does not appeal at sea level would be infinitely worse at extreme heights was later borne out, and we purposely omitted certain commonly used mountain foods from our menu. All perishable items, including oleo, bread, cereals, and even jam, were vacuum packaged in small aluminum-foil packs, and for the mountain these were combined in polyethylene bag units intended for four-man days. For those who would test their psychological fitness for a Himalayan expedition I suggest a day of spooning strawberry jam into tiny collapsible bags; if at the end of a day such enterprise still leaves you in command of all faculties, then be assured that lesser high camp tribulations will be easily taken in stride. (Our university-loaned warehouse must still show the effects of that unforgettable "jam session.") All food was shipped to India two months in advance, but our vacuum packaging resulted in surprisingly little spoilage.

Equipment selection was largely governed by our budget, and much of our ordinary mountaineering gear, especially that destined for Sherpa use, was donated by Sierra Club friends. Most of our equipment was standard Himalayan type, down suits, vapour-barrier Korea-type boots, and double sleeping bags, but our tents, made for us by Gerry Cunningham, we feel were superior to any previously used in the Himalaya. Perhaps the most striking feature of these double-walled nylon tents was the use made of two glass wands for bowing out the sides with a resulting roominess never experienced before. The tents also withstood battering winds and could be erected simply. Except for medi-

cinal purposes oxygen was not used, mostly because of its prohibitive cost and the difficulties of transporting it.

Selection of the final team was no problem for us. What had been the California Himalayan Committee in 1952 now became, with a few changes necessitated by other commitments, the California Himalayan Expedition for 1954. Those of us who had made up the team had originally conceived the idea of the expedition in 1951, and it was we who had struggled with the problems of necessary permission to travel, secured the funds, and acquired the equipment; of course all this was done with the constant help and encouragement of our Advisory Committee, made up of men who probably would have organized their own Himalayan expedition had world politics permitted a few years before. All our members had climbed together many times in the past, so we were well acquainted with one another and familiar with the idiosyncracies of each.

The team consisted of two scientists and eight climbers. Lawrence Swan, 31, a Stanford Ph.D., would carry out a biological collecting program, while Nello Pace, 37, Professor of Physiology at the University of California, would work on high-altitude physiological research; Nello was elected deputy leader of the expedition. Fritz Lippmann, 32, a high school teacher, climber since pre-war days, and now back from his summer's ascent of McKinley, perhaps had had the most experience of any of us. Another high school teacher, Richard Houston, 32, also had had considerable expedition experience; those who had climbed with him in the past knew that his capacity for cheerfulness in tense situations would be a real asset on Makalu. Allen Steck, 27, sporting goods store manager, and a brilliant mountaineer, with the rare talent of an almost infallible sense for route finding, was in charge of equipment in addition to being a climbing member. William Long, 23, a survival instructor for the U.S. Air Force and a power house on any mountain, was the only unmarried member, and how "Shoulders Long" has maintained his status is quite beyond our understanding. Bruce Meyer, M.D., 31, an orthopedist, was the expedition doctor, but he also proved to be one of our strongest climbers when the going became difficult. The fact that William Unsoeld, 27, was a recent graduate of the



BARUN VALLEY BELOW BASE CAMP
Chamlang on left side of icefall.
Photo. W. Siri

Pacific School of Religion was not the primary reason for his being a late addition to the expedition team, but we thought his special training would be valuable. Actually Willi was our only member with previous Himalayan experience, having made an attempt on Nilkantha in 1949. We were to rely heavily on Willi's judgment on the mountain. Will Siri, 34, University of California physicist, proven leader on two Peruvian Andes expeditions and in Club affairs at home, had been our chairman during the last year and a half of organization. It was natural that the group should now vote him our leader. The fact that our program in the field came off with a striking absence of snags was in large part due to Will's thorough planning and guidance. As a 23-year-old graduate student in zoology, I very nearly missed going on the expedition, for I was liable for armed-service induction at any time, but in the end I was spared for the trip. One other climber, Alfred Baxter, was to have been on the team and that the expedition succeeded in getting under way promptly, we perhaps owe more to him than to any other member. As original chairman of the Expedition Committee it had been Al's dynamic enthusiasm that had initially gotten us started, he had constantly been our hardest worker, and now, ironically, because of a bad ankle recently broken while skiing, he had to forego the trip for the succes of which he had worked so hard.

With a gathering of relatives, well-wishers, and the curious, along with a five-piece German Band from the local brewery (we are still at loss to explain their welcome presence), our group left the university campus on February 18th, boarded a MATS plane, and in a week were in Calcutta. Here we were faced with the

Top—**CAMP II AT 18,500 FT. ON MAKALU, LOOKING SOUTH**
Barun Valley and Peak 4 in background.
Photo, W. Siri

Bottom—**CALIFORNIA HIMALAYAN EXPEDITION MEMBERS AND SHERPAS AT BASE CAMP**
back row—William Long, Fritz Lippmann, Nello Pace, Thandup, Tasha, Mingma Tseri, L. Bruce Meyer.
middle row—William Dunmire, Lawrence Swan, Ang Phutar, William Unsoeld, Pasang Dorge, Allen Steck, Gompu.
front row—Chotaray, Pemba Tensing, Richard Houston, William Siri, Ang Tharkay, Nima Tensing, Kippa, and Ang Temba.
Photo, W. Siri

usual frustrations and delays of the Indian customs. For awhile the threat of a 40% duty on food and equipment almost brought the expedition to an end, but we finally won out and, travelling by rail, we arrived at the Nepalese border town of Biratnigar.

At Dharan, 40 miles within Nepal by truck, we were greeted by a parade of about a hundred communist flag-waving school children. We later learned that the demonstration was not primarily for our benefit but was being directed against the local school system. Nevertheless, it was saddening to think that this geographically critical sector of Nepal should be the constant recipient of only communist propaganda.

At Dharan, where we had expected to find chaos since we were a week late in meeting our 250 coolies, we were astonished to find things in perfect readiness for immediate movement of the expedition. We were thus initiated into the remarkable efficiency and organizational capacity of our Sherpas sirdar, Angtharkey. It was immediately apparent that he commanded the deepest respect from his fellow Sherpas and Nepalese coolies, yet a ready smile and good humor were always his. This fortunate combination of qualities along with mature judgment has made Angtharkey a true leader of men. Our twelve Sherpas varied greatly both in personality and past experience, but we were delighted to find that they all possessed a spontaneous light-heartedness that seems inherent in the Sherpa race.

From the start it was apparent that we were going to be a spoiled lot of Americans. At first we resisted. We told our Sherpas that we would gladly blow up our own air mattresses and that we didn't mind pitching in with camp chores, but they always had their way and ended up doing all the work while we meekly looked on. Can we ever forget the time that Bill Long was demonstrating the approved survival method for starting a campfire in the rain while our Sherpas watched dubiously! The technique involved numerous whittled "fuzz sticks" and the sheltering of these from the rain somehow in order to start a blaze. Finally, after Bill's repeated failures, Taschi, one of our older Sherpas, left the group—evidently weary of such ineffectual efforts. A moment later, he returned from the cooking area with a pot of glowing coals. These he dumped unceremoniously on

Bill's smouldering pile, muttering, "No good, Sahib, much better this way." A chapter on our march into Base Camp might well be titled "The Himalayan Education of Ten Americans by Their Patient Sherpas."

Our route followed due north through the foothills and partly along the Arun River and was well traveled at this time of year. Jungle fires were burning uncontrolled everywhere on the lower hills, and the resultant haze completely obscured any views of the high peaks that we might have had at this time. Even Nepal has a smog problem! Land burning on steep slopes will surely pose an eventual erosion problem in Nepal, and although the cultivated fields are always terraced, we saw a good deal of erosion already in evidence.

During the march in I was busy making a collection of small birds and mammals for the University of California, so most of the time I moved apart from the rest of the group. Although it was still March, the trail dust and heat in the foothills was excessive, and at this time we thought that a better conditioning exercise for a Himalayan expedition than our winter climbs in the Sierra would have been a mid-August hike across the Nevada Desert.

With the Arun River crossing at Num we finally had our taste of the famed Nepalese bamboo suspension bridges. This one was a 200-foot swinging span, 50 feet above the torrent. It was disconcerting to hear that these bridges are never repaired until they collapse of old age, when a new one is built, and even though we were assured that the present structure was not due to fail for several more months, last year's fallen bridge heaped along the water's edge was an all-too-constant reminder of their eventual fate. It took a day and a half getting our crew of 250 coolies across the Arun.

Beyond Num we climbed steadily, and when we reached snow line two days later at 10,000 feet, the seldom-used trail was gradually lost. After we had spent a day in a snowstorm trying to relocate the trail, the 100 coolies who had accompanied us from the plains and had probably never experienced snow decided that they had had enough and quit for home. We could hardly blame them, for even those of us clothed in full moun-

tain outfits found it rather miserable going, and these people had no shoes and only very flimsy garments. The rest of our coolies, who had come down to the expedition from the hill country and were Sherpas in origin, seemed to welcome the snow. Our solution was to make a cache of food and equipment for these hardier souls to return for in a relay after we had reached base camp. We still had with us 30 Sherpanis or lady Sherpas, each carrying a full load. It must be admitted that we had originally been doubtful about hiring female porters, but they certainly now proved their worth, both as cheerful load carriers and real morale boosters for the rest of the coolies.

After a day of reconnaissance, floundering in the fresh snow, we located the long-sought Barun Valley which would lead to the base of Makalu. Actually we entered the valley too far down, in the portion that Eric Shipton had described as a "typical impassable Himalayan gorge," and if it had not been for the old avalanche snow choking the rock-walled gorge bottom and providing a veritable highway in otherwise hopeless stretches, or for the trail-construction genius of the Sherpa crew across some very exposed moss gardens, we should never have gotten our heavily laden coolies up the canyon. As we moved up the Barun, we were surprised to find less and less snow to impede progress, probably because we were entering a kind of "rain shadow" so close in to the high peaks.

We were now above the zone of jungle fire haze and were gaining our first views of the tremendous snow-clad summits. Even these mere 20,000-footers were greater peaks than most of us had ever seen. Finally we rounded a corner in the valley, and there, unmistakably dominating all lesser giants, was Makalu. This was the peak of which Mallory after his glimpse in 1921 had proclaimed, "Among all the mountains I have seen, and, if we may judge by photographs, all that ever have been seen, Makalu is incomparable for its spectacular and rugged grandeur." An immediate discussion of route possibilities ensued among the climbers and lasted until an hour later when mists swept away all further views.

Our immediate task was the selection of a site for Base Camp. We had originally assumed that this would be on the Barun Glacier, but the glacier had receded considerably, since our map

showed ice where we now stood, yet there was no sign of it in the next several miles. For Base Camp we chose a broad ledge just above the stream and about two miles away from the southwest slopes of our mountain. Although at 15,500 feet we were well above timberline, there was some low juniper scrub on the slopes nearby. We could hardly have picked a more pleasant spot at this elevation in which to spend a good part of the next two and a half months. On the next day, April 4th, Base Camp was established, just three weeks after we had left the roadhead at Dharan. Surprisingly enough, a year ago in Berkeley, we had calculated that the march in should take three weeks

W. W. D.

PART II: *The Climb and Conclusion*

For six days following our arrival at Base Camp on April 5th there was a continual flurry of activity throughout the camp. High-altitude clothing was issued, Thermo-pac boots fitted, high-altitude food units completed, and a veritable orgy of physical tests indulged in under the relentless eye of our physiologist, Nello Pace.

The immediate problem was that of reconnaissance. Since no previous attempt had been made on Makalu, the route was purely a matter of conjecture based on aerial photos and the reports of Shipton and Evans who had descended the upper Barun with Hillary and Lowe on their return from the Everest reconnaissance in 1951. Of the four main ridges of Makalu, two were easily ruled out. The West Ridge, from both photos and direct inspection, was obviously of much too severe an angle to give any hope of even a start being made on it. Thousands of feet of narrow rock rib sweep from the valley floor direct to the summit with scarcely a break. The East Ridge was not accessible to view from the Barun, but photos showed it to be extremely long, and the combination of its length and the difficulty of approach to its foot ruled it out.

Both of the remaining ridges, the North and Southeast, had to be counted as possibilities, so it was with the idea of gathering additional information upon which to base our final choice that we sent out our two reconnaissance parties on April 11th. Four

climbers and four Sherpas spent five days looking over the approaches to the col on the North Ridge, while four other climbers with three Sherpas were gone three days looking for a possible eastern approach to the col on the Southeast Ridge. Both parties returned hoping that the other had found something about which to be optimistic.

Hillary had earlier expressed an opinion that the North Ridge was the logical route, and surely in length and general angle this seemed a good estimate. However, the approach to the col appeared to offer considerable difficulty, while a tremendous concave nick in the upper part of the ridge promised to be a serious obstacle. Then, too, it was reasoned that the northern exposure to the northwesterly winds would prove a hindrance which would be reduced by the protective bulk of the mountain if we chose the Southeast Ridge. The clinching factor, however, was that of the logistic problem of moving our Base Camp a distance of from three to four days march up the Barun Valley in order to be within striking distance of the col on the North Ridge. To have done this would have placed a severely critical strain upon both our reduced porter force and our depleted cash box. The Southeast Ridge was therefore chosen as the route for what we then considered our reconnaissance-in-force, but which later proved to be the extent of our entire effort. An added advantage of this route was its unobstructed view from Base Camp, facilitating the daily radio contact which was maintained between Base and all high camps. Smooth movement of men and supplies was greatly aided by this arrangement.

On Easter Sunday, April 19th, the climb itself began in earnest with the dispatch of two climbers and eight Sherpas for the establishment of Camp I. Steck and Unsoeld led up a long talus slope which split the cliffs a safe distance to the left of the area marked on our "avalanche schedule" as unduly hazardous. An excellent site for Camp I was located at the top of the cliffs near the end of the talus and just short of the snout of the prominent medial moraine. Here the rock had been polished into massive slabs by the action of the near-by glacier and a deep hollow had been gouged out which now caught the melted out-run from the fall which was less than 300 feet away. The result was an emerald pool about a hundred yards across. Its waters were of the

purest clarity and, even more remarkable, this pool never froze during our stay. The mile-long lake at the snout of the Barun Glacier was frozen solid for a long while after our arrival, but the Emerald Tarn maintained a fairly steady temperature of about 41°F. Camp I was placed on a handy gravel bed only a few feet from the edge of the lake at an altitude of about 16,500 feet.

The medial moraine leading up from Camp I proved an impracticable route because of its succession of vertical ice steps, from 10 to 15 feet high, which were often menaced by precariously perched boulders frozen into the ice. A most satisfactory alternate route was pioneered by Steck and Unsoeld up the talus slope to the left of the icefall above Camp I and then across the center of the two icefalls on a long ascending traverse to the center of the main glacier which sweeps down from the col. From a distance these two icefalls appeared hopelessly tangled and twisted, but once entered they proved to offer a well-surfaced highway to Camp II. Successive small pond platforms of smoothly frozen ice were conveniently joined together by gently sloping ice inclines with only a relatively few rough spots to mar the smooth saunter to Camp II at 18,000 feet.

While overlapping relay teams of climbers and Sherpas flagged the route with specially prepared bamboo "willow wands" and thoroughly stocked Camp II, Steck and Siri with Gompu and Tashi reconnoitered the route to Camp III. They had hoped to place it on the col itself, but a late start and poor visibility had forced them to drop their loads some 500 feet short of the crest, after putting up an excellent route over the monotonously fatiguing snowfields below the col. On April 26th four climbers and four Sherpas established Camp III less than 200 feet below the col at an altitude of about 21,500 feet. A platform had to be carved out of the discouragingly steep slopes before Meyer and Unsoeld could be established for a try at Camp IV the next day. The other six went back down for another relay, planning to come up the next day in support.

Both cold and wind were extreme the next morning, limiting operations to an unsuccessful search for a better campsite in the vicinity of the col. After an hour or two, the advance party was forced back into its tent to recuperate. Later in the day, they

made a final attempt to pick out a route to Camp IV, reaching a position on the rapidly steepening slopes of the South Face from where a possible route back to the crest of the ridge was visible. Bulges of rock and ice on the crest of the ridge immediately above the col ruled out the first 500 feet of the crest as a possible route, forcing us onto the face as the only alternative.

On April 28th Houston and Dunmire arrived at Camp III while Meyer and Unsoeld returned to Base. The next day the attempt on Camp IV by Steck and Long was soon blotted out by heavy clouds which not only stopped the attempt a few hundred feet above Camp III, but also destroyed all contact with Base Camp until the party returned on May 1st. Heavy snow on the mountain had driven them back and put a stop to operations for four days.

During this enforced delay, we enjoyed the first formal function of the Barun Valley 'Dining Is Such Sweet Dalliance' Society —a ceremonial dinner honoring Sir Edmund Hillary and Bill Bevan who graciously made the trip up from their near-by Base Camp for the occasion. The apparently barren Barun itself supplied us with the main course—roast Ram Chukor a la Thondup; while our resourceful M.D., Dr. Bruce Meyer, supplied the liquid refreshment, tapped from deep within the dim recesses of his well-lined medicine chest and composed of purely medicinal ingredients, such as formaldehyde and the like.

By May 5th the snow had consolidated sufficiently and Houston and Unsoeld reopened the route to Camp III. Remaining at Camp III as support, they watched Long and Dunmire get a good start at 0630 in putting the route up to Camp IV, which was hopefully aimed at the ridge at about 23,000 feet. Despite the early start, a point only about half way to the projected site was reached. The snow slopes were steep enough now to require considerable belaying and, at their highest point, the two men had reached a rock band where they left our first serious piton.

The following day Houston and Unsoeld were away by 0530—a near-record for the trip—and, with the help of the wands and steps left by the party of the previous day, reached the previous high point at about 1300. The clouds were already solidly upon them with visibility quite poor while the snow-covered rock band proved stubbornly difficult. Three pitons were driven

for safety in the next 40 to 50 feet. From the top of the band, at about 22,300 feet, a narrow snow gully was traversed steeply to the left for three slow rope-lengths. Deep, very poorly consolidated powder snow necessitated piton anchors in the gully walls and cut progress to an exhausting minimum. By 1500 they appeared to have reached the final large snow band which traversed back to the ridge crest at an easy angle, but visibility was barely 100 feet by this time, so it was impossible to verify their position exactly. Two rappels were made on the return down the gully and over the rock band, but even then the descent was extremely slow and Camp III was not reached until 1810.

On the following two days, May 10th and 11th, the extremely high wind prevented further operations above Camp III, so the time was spent in enlarging the snow cave which had come to serve as a cafeteria-warehouse-day room at Camp III. Largely because of Bill Long's efforts, it grew to accommodate about 10 men comfortably and proved an invaluable asset in resisting the high winds which were so common at this camp. A smaller excavation served as a wind-proof rest room which established our facilities at Camp II as absolutely plush in comparison with its earlier bleak inhospitality.

Previous efforts had made it apparent that Camp IV would have to be located about half way to the site which we had hoped to utilize. A location on the face itself would have to be constructed although the prospect did not look encouraging. On May 12th the wind moderated enough to allow Long and Unsoeld with two Sherpas to get up to the final snowfield below the rocks and carve out a small platform upon which to dump their tents, stoves, and food units. One hundred and fifty feet of fixed rope anchored to ice pitons greatly improved the route across the steep snow slopes just below Camp IV.

Steck and Meyer were ready to consolidate Camp IV the next day when Long was suddenly stricken with paroxysmal auricular tachycardia, as diagnosed by Dr. Meyer. The attack lasted about three-quarters of an hour, with Bill's pulse hovering about the 200 mark. Digitalis injections brought eventual relief, but no further travel was possible that day. In the afternoon Siri and Dunmire arrived to support the consolidation of Camp IV, but as the weather continued poor it was decided that further efforts

above would prove unrewarding for a time, so on May 14th all six climbers at Camp III descended to Base Camp.

For four days at Base Camp the weather held foul with a daily weather report predicting worse to follow. The predicted lull which is supposed to set in about two weeks prior to the arrival of the monsoon was certainly coy about putting in an appearance. Through special arrangements with All-India-Radio we were receiving daily reports on Himalayan weather and the progress of the monsoon, neither of which looked very encouraging. By May 18th our time margin had become so slim that it was decided that another start must be made despite the weather.

The following morning, Steck and Unsoeld left with two Sherpas to reopen the route to Camp III on what was clearly to be our last attempt. Encouragingly enough, the weather broke clear and bright despite ominous reports from the radio. Camp III was reached in two days and one carry was made to IV under a blazing sky and a total lack of wind. A dysentery attack suffered by Unsoeld prevented the scheduled occupation of Camp IV, and by the time the support party of Long and Meyer arrived at Camp III, the weather had again deteriorated.

In the following days several attempts to reach Camp IV were completely frustrated by the weather before Long and Steck finally broke through. A tent platform was out of the question because of the continual flow of granular snow down the snowfield. These waves occasionally reached the proportions of small surface avalanches and would have soon buried any tent erected. Steck and Long were therefore forced to burrow into the slope. A small, cramped tunnel was scratched out beneath the surface and a tarp rigged as a trap door to keep the snow out. The extreme angle of the slope demanded a belay every time anyone was forced to step outside the entrance of the icy retreat.

For four days Camp IV was occupied with but little abatement in the weather. One try at Camp V carried a few hundred feet up the face, but snow and wind stopped all attempts far short of the crest of the ridge. By now Camp III was occupied by Siri, Houston, Dunmire, and Meyer, while Unsoeld was taking a stomach cure below at Camp II. Fritz Lippmann, the eighth member of our climbing party, had unfortunately been suffering from a stomach ulcer ever since our arrival at Base Camp and

CAMP III AT 21,000 FT. ON SADDLE OF SOUTHEAST RIDGE
Looking southwest, with Barun Valley in middleground.
Photo, W. Siri

CAMP III
ON MAKALU
Sherpas preparing for trip to Camp IV.
Photo, W. Siri

had been denied any extended participation in the climb itself. His supervision of the Base Camp commissary had done much, however, to increase the benefit of our occasional rest days.

By May 28th, when Steck and Long returned from their stay at Camp IV, it was obvious that the summit was out of the question. We had to accept the fact that the monsoon would reach us within little more than a week and the weather, if anything, appeared worse each day. It was decided to have at least one more go at establishing Camp V on the ridge, from where it was hoped to get a much clearer estimate of the further difficulties involved on this route.

Dunmire and Unsoeld therefore occupied Camp IV on May 29th and the next day pushed up to the rock band with two Sherpas. The weather had closed in early in the morning and it had been snowing lightly during the several hours of their climb. By the time they had installed a 50-foot rope ladder across the pitch of difficult rock, conditions prohibited any further advance. The two Sherpas were exhausted by this effort and the next day were forced to return to Camp III with Dunmire. The same day Long came up with the last three Sherpas who were in condition for another try. On June 1st Long and Unsoeld, with the Sherpas, Gompu, Mingma, and Kippa, finally reached the crest of the ridge and established Camp V at about 23,000 feet. The rope ladder greatly helped this effort, but the weather was nearly prohibitive. Between 12 and 18 inches of fresh snow fell at Camp III during that day and only the steepness of the slopes, which continually drained off the granular fall, prevented the advance party from being seriously menaced by avalanches. Unsoeld was once more suffering from dysentery, so it was Bill Long, in a magnificent demonstration of endurance, who broke trail all the way to Camp V.

This highest camp was set on a level snowfield atop a rounded rock knob on the very crest of the Southeast Ridge. From the camp the ridge could be seen to stretch away at an easy angle as far as the Great Gendarme, which is easily visible on the ridge just below the break where the ridge levels off. No apparent obstacles occur over this stretch of some 2000 feet and progress should be rapid here, given the proper snow conditions.

The high point was established on June 2nd, a few hundred

Photo, W. Siri

feet above Camp V, but the weather was still very threatening and snow began falling again at 1300. The final descent began on June 3rd with Long and Unsoeld coming down to III in a blinding snowstorm all the way. The going was extremely delicate on the snow band just below Camp V and it was only the piton anchors put in the rocks just above the band which enabled the party to check the frequent falls which were occasioned by the extremely unconsolidated snow. The report had been received that the monsoon would strike the Makalu area within two days and that the storm would be continuous until then, so little time was lost in evacuating the mountain. The actual arrival of the monsoon was entirely unnoticed by our party. No detectable difference could be distinguished between what was supposed to be the monsoon and what we had been experiencing over most of our stay in the Barun. All agreed that it was a very peculiar season—and we were most unfortunate to have chosen it for our attempt.

The march out to Jogbani was enlivened chiefly by an increasing concern over the dwindling contents of our cash box. As successive relays of porters were paid off, our margin of solvency was rapidly reduced until it appeared likely that we would be forced to borrow from our Sherpas in order to insure the salvage of our 50 loads. Ang Tharkey, to whom we were already so deeply indebted for his competent handling of our approach march, blithely waved aside our worries, assuring us that he and his boys had plenty of funds to see us through to Jogbani, where our own reserve could be secured from Calcutta. However, his expert management of the coolies eliminated even this necessity and we were just able to reach the border under the power of our own currency.

By way of brief summary of the accomplishments of our expedition mention might be made of the following:

1. The thorough establishment to an altitude of 23,000 feet of the lower half of an interesting and difficult route on Makalu and the positive demonstration that this route will go to at least about 25,000 feet. This effort was made with only the loss of three toe-nails among the entire party of 10 sahibs and 14 Sherpas, despite weather which set a casualty record among Himalayan climbing parties.

2. The collection of a significant addition to the known body of data available concerning both man's acclimatization to altitude and his physiological reaction under stress. Dr. Pace's program was not only most ably conceived, but also relentlessly carried out— despite occasional strong protests from his reluctant subjects.

3. The collection of a good set of bird and mammal specimens from the area by Bill Dunmire, whose determination with the shotgun was even known on one occasion to over-step the limits of the local livestock.

4. The collection of information on the topography of this poorly mapped region, accompanied by a set of representative geological specimens by Bill Long.

5. The collection of an amazing plethora of Himalayan insects by our biologist, Dr. Laurence Swan. Larry not only demonstrated his own enviable zeal with the bug net, but communicated his enthusiasm to the Sherpas who contributed an endless stream of local wildlife to his collection bottles. Even an unwary chicken or two were seen to fall prey to the questing nets.

6. The acquisition of considerable information concerning the problems encountered in organizing Himalayan expeditions today. The fact that our trip was conceived, planned, and successfully executed according to schedule by a group of novices in the Himalayan field will, we sincerely hope, act as an encouragement to future American Himalayan ventures. That our mistakes and painfully gained insight into the details of organization may be readily available to interested groups, a careful report is being prepared for filing with the American Alpine Club.

7. And, of course, of primary importance to the individual climbers composing our party was the unparalleled experience of gaining a first-hand acquaintance with the greatest mountain range on earth through the privilege of making the first attempt on one of its finest peaks. Our entire party joins in thanking deeply all those many friends who helped make this privilege possible.

Summary of Statistics

ATTEMPTED: Makalu, 27,790 ft., Nepal Himalaya; previously unattempted, second highest unclimbed peak (if Lhotse

is considered part of Everest), and fourth highest mountain in the world.

HEIGHT REACHED: 23,200 ft.

PERSONNEL: Leader, Dr. William E. Siri; Deputy-Leader, Dr. Nello Pace; Dr. Laurence Swan, Dr. Bruce Meyer, Allen Steck, Richard Houston, Fritz Lippmann, William Dunmire, William Long, and Willi Unsoeld.

ACKNOWLEDGMENTS: National Science Foundation, Office of Naval Research; U.S. Air Force; California Academy of Arts and Sciences; University of California; Sierra Club Membership; Executive Committee of the Sierra Club; and all the wives, individuals, and firms that contributed so generously of their time and substance. Without the help of any one of these, the expedition would have been fatally handicapped.

W. U.

Ascents in the Cordillera Blanca

LEIGH N. ORTENBURGER

For nearly a century mountaineers have been attracted by the Andes in South America. Here they have found innumerable ice-covered giants, unclimbed, relatively accessible, with good weather predominating and free from the political protection of the Himalayas. Yet it was not until the Austrian expeditions in 1932, 1936, and 1941 that the most spectacular regions in the Andes, the Cordillera Blanca and the Cordillera Huayhuash, were explored. These strong and capable expeditions brought back stories and pictures of some of the most remarkable mountains in the world. In the Cordillera Blanca alone there are approximately 28 peaks above the 6000-meter level (19,685 ft.). The Austrians climbed many of the highest peaks and published three excellent maps of these regions.

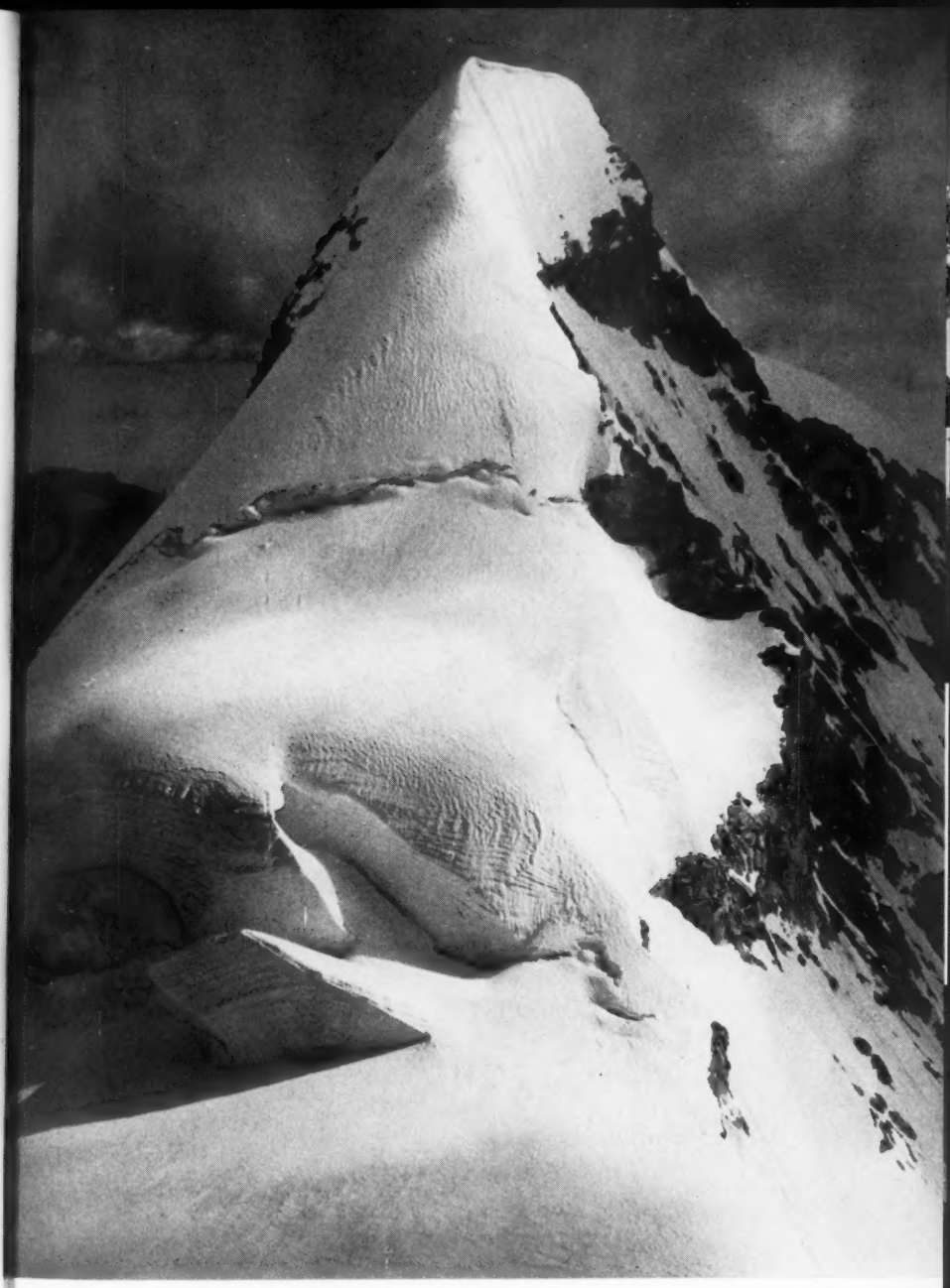
At the beginning of 1954, 8 of these 28 peaks remained unclimbed. From first-hand information and a study of the maps, it was found that 4 of these 8, the west and south peaks of Nevado Huandoy and the 2 peaks of Chacraraju, could be reached from one central canyon, the Quebrada Yanganuco. Five more peaks, Chopicalqui, Pisco, Yanapaccha, and the east and north peaks of Huandoy, could also be reached from the same canyon. So the ambitious plan was evolved of setting up a base camp at the head of the Quebrada Yanganuco and attempting at least most of these peaks. In addition we hoped to have sufficient time at the end of the summer to try the north and south peaks of Huascaran, the two highest summits in Peru.

With the decision reached as to our goal, we began in Decem-

ber the months of preparation necessary for every expedition. In our case the details were coordinated by vast numbers of air-mail letters, since the geographical distribution of the membership of the American Andean Expedition 1954 was nation-wide: Dr. Fred D. Ayres, Portland, Oregon; Dr. George Bell, Los Alamos, New Mexico; Alexander Creswell, Oakland, Oregon; Richard Irvin, Berkeley, California; David (Georgia) Michael, Athens, Georgia; W. V. Graham Matthews, Springfield, Massachusetts; John C. Oberlin, Cleveland, Ohio; and Leigh N. Ortenburger, Norman, Oklahoma. There were two interesting results of the nation-wide character of our expedition: no one member had met all the other members and no leader was chosen or even deemed advisable. When June finally arrived, Fred and Cres flew to Lima a week ahead of the main contingent of five in order to expedite our shipment of food and equipment through the intricacies of the notorious Peruvian customs. John Oberlin was due to arrive in Peru a week later than the rest of us.

At 5:00 A.M. on June 15th our DC-6 swooped down through coastal winter fog to the Lima Airport. After an encounter with the Peruvian press, we hurried to the Hotel Crillon, where we found a message from Fred and Cres stating that all our equipment had cleared customs. The only remaining task was to load our food and equipment on a truck and head for the mountains. This was unbelievable! No previous private expedition had ever had such incredible luck with the customs. Since the advance party had made all the necessary arrangements so efficiently, there was no need of our wasting time in Lima. That same evening George and Dick left Lima in our equipment truck for the town of Yungay at the foot of the Cordillera Blanca. The other three left the next morning, arriving in Yungay after a 12-hour drive. That evening was the first time as many as seven of us had ever assembled in one place at one time. We also met our porters: Eliseo, Felipe, and Miguel, whom I had known from the 1952 University of California Expedition; and Eugenio, the brother of one of our porters in 1952. These experienced and dependable men proved a great asset to us throughout the summer.

Our immediate problem in Yungay was to locate a man to



WEST PEAK OF HUANDOY, 20,853 FT., FROM THE EAST
Note climber at bergschrund.
Photo, L. Ortenburger

SOUTH PEAK OF HUANDOY, 20,210 FT. FROM EAST
(Telephoto)
Photo, L. Ortenburger

Top—HUANDOY GROUP FROM SOUTH
left to right—West Peak, 20,853 ft.; South Peak, 20,210 ft.; North Peak, 20,981 ft.; East Peak, approximately 20,000 ft.
Photo, L. Ortenburger

Bottom—HUANDOY GROUP FROM EAST AT SUNRISE
left to right—South Peak, 20,210 ft.; West Peak, 20,853 ft.; North Peak, 20,981 ft.; and East Peak, ca. 20,000 ft.
Photo, L. Ortenburger

supply us with burros for the 16-mile trip up the Quebrada Yanganuco where we would establish our Base Camp. Usually it takes about a week to get this kind of thing accomplished, but we were lucky in finding Alfredo Blanco who could supply us with 25 burros for the next day. Of course we had to pay about twice the standard price in order to get them in a hurry. By 3:00 A.M. of the 19th Alfredo and the porters had the burros loaded, some with loads approaching 200 pounds, and we were off. About noon we called the caravan to a halt at the previously selected site for our Base Camp. It was a pleasant wooded spot—a rarity for the Cordillera Blanca—at about 13,200 feet, with a spring nearby for safe drinking water. The first two days here were spent setting up tents, sorting equipment, and taking hikes to accustom ourselves to the elevation. At this time George suddenly came down with a high fever. He assured us that he would be all right since he had acquired the same malady on the 1950 Yerupaja expedition. For the rest of the summer our schedule was the same. We would calculate the number of days required for a peak, prepackage food for that number of days, and then set off in the attempt. Between climbs a day or two would be spent at Base Camp resting and enjoying the simple pleasures of green grass and flowers, fireworks, and bacon.

Since acclimatization is essential in climbing peaks of 20,000 feet and over, our plans were first to climb two small peaks. Our initial objective, Yanapaccha, 17,913 feet, was the smallest peak in the area but had never been climbed. On June 22nd, Ayres, Creswell, Irvin, Matthews, Michael, and I started out with the porters to establish a high camp so that the peak could be tried the next day. It was a beautiful one and we had spectacular views of Chacraraju (20,054 ft.) on our way to camp. In the early afternoon we reached the last comfortable place for a camp, short of the glacier, at 15,250 feet. Our porters left their loads here and returned to Base Camp with instructions to return in two days.

Up early the next morning we had a rare opportunity for sunrise pictures of the Huandoy group. After a few hundred feet of

CHACARAJU, CA. 20,054 FT., FROM SOUTHWEST
Photo, L. Ortenburger

talus-covered slabs we gained the gentle glacier stretching up to the face which leads to the summit. The snow was soft—a condition with which we were to become quite familiar as the summer went on—and the step kicking was tiring, but we made good progress. Crossing one crevasse and climbing the steep final face, we found ourselves on the summit ridge no more than 100 feet below the summit cornice. To add to the dangers, not only was the ridge doubly corniced, but it was covered with 18 inches of definitely unstable powder snow. With words of encouragement from the second rope, I advanced toward the top after making certain that I had a good belay. Twice in the last 50 feet the top portion of the snow cracked and slid a fraction of an inch. Literally quaking in my boots, I reached a point close enough to the very top to satisfy me—I could touch the top with my axe and look over it to the Amazon jungle beyond. It was not a spot in which to linger. I hurried down to the others and we decided that there was no sense in exposing anyone else to these dangers. Sufficient time was left to make the descent leisurely and enjoyable. We were all pleased with our first success, but by 4:00 A.M. the next morning Dick had developed a bad cough. Not wanting to take the chance that it might develop into something more serious, we decided to break camp immediately and head down to base camp by flashlight.

Reaching the camp at 9:00 A.M., we were pleased to find that George had completely recovered from the "Yerupaja Blight" and that John had arrived. After a dose of antibiotics Dick, too, recovered by the next day. We were now at full strength for Nevado Pisco (18,875 ft.) and the East Peak of Huandoy (ca. 20,000 ft.). Two weeks' food was prepackaged in polyethylene bags and the porters were sent up toward Huandoy on the first relay. On the 26th we all packed up the 3,000 feet to the site of our Advance Base Camp (16,000 ft.), which was the starting point for the climbs in this area. From here our route led across the receding Cook Glacier, which flows east from the main Huandoy saddle. On the other side a beautiful little tarn at our next campsite (16,400 ft.) was a welcome relief from the unstable boulders of the glacier. The reflection of Chopicalqui in this tarn is a rare sight. On reaching the saddle between the Nevado Pisco and the

East Peak, the next day, I was struck by the changes since 1952. Since it was a month earlier after a winter of exceptionally heavy snowfall, 20 feet more snow lay on the level and the rocks of the East Peak were still plastered with snow.

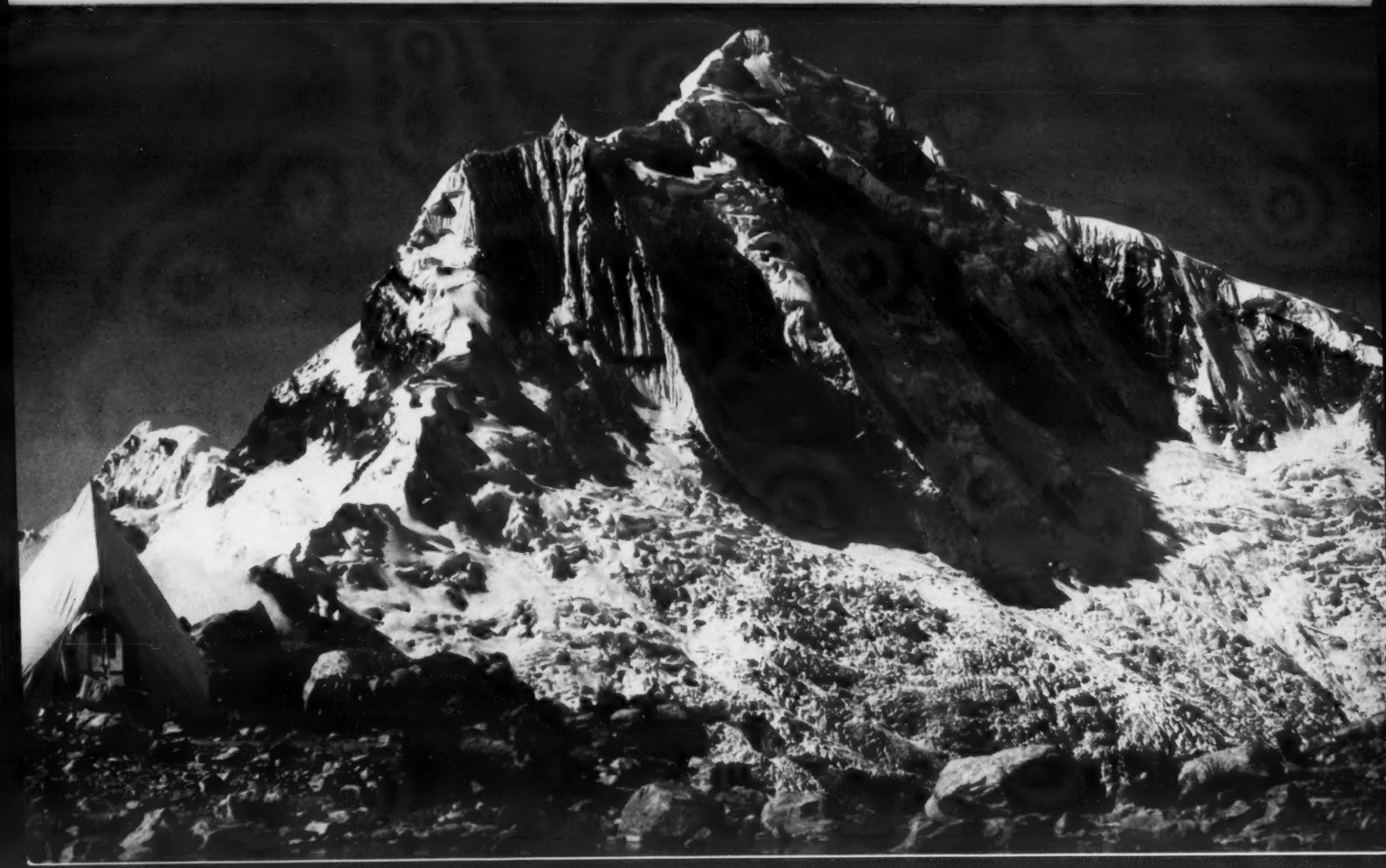
Since I had climbed Pisco in 1952, the East Peak now attracted my interest. On the next day the other six started out for Pisco while Georgia and I headed for the East Peak. Trying the spur which leads to the north ridge, we ran into difficulty almost immediately with the snow- and ice-plastered rock. After some difficult climbing, involving pitons and shoulder stands, we topped the steep portion of the spur. But by now it was too late —to continue meant a bivouac for which neither of us was very eager. So we roped off the ridge and were soon back at camp. The others had already returned from a not uneventful day on Pisco. After they had passed through the one icefall en route, there were no more problems until just beneath the summit where they discovered a great crevasse completely separating them from the top. There was nothing to be done except to cut up the far side and this Fred did with great effort. But once again because of the press of time and the danger of the situation, it was thought inadvisable for more than one to go to the top. Fred descended and all six made their way back to camp. The next day was supposed to be a rest day, but the weather was so fine that we all climbed up a snow dome overlooking Lake Parron for a long session of photography. That evening the weather changed. The East Peak resisted one more attack because of the wind and snow during the two more days we waited at our camp for the weather to clear. On July 3rd we finally gave up and returned to Base Camp, leaving a cache of food at our Advance Base Camp for future attacks on the Huandoy group.

At base camp two days were consumed in prepackaging food and sorting equipment for the attempt on Chopicalqui. The northwest face of this peak, rising over 6,000 feet in an amazing succession of rock faces, icefalls, and finally ice flutes sweeping up to the summit, is the most prominent sight from the Quebrada Yanganuco. In 1932 the Austrians made the first and only ascent of this peak, at 20,997 feet, the fifth highest in Peru, by the

west ridge. We hoped to repeat this climb. Our plan was to establish two camps on the way to a high camp at an 18,600-foot col, from which we could reach the summit in one day. Since the route to this col was, to say the least, not obvious, we drew lots to see who would go ahead of the main party to find the way. On July 6th two of the four "volunteers," Fred and Dick, set out. They were to set up the first camp and then cross the glacier the next day to scout the route to our second camp. On the 7th Georgia and I followed and reached Big Boulder Camp about three in the afternoon. Two hours later Fred and Dick returned with word that they had found a good route across the glacier and an excellent campsite on the highest rock below the Chopicalqui glacier. The next day the four of us established Icicle Camp at 16,800 feet and in the late afternoon sunlight tried to envision a route through the icefall leading to our proposed Col Camp. We started up this icefall on the morning of the 9th. After a few misdirected efforts we reached a point from which we could see that there were no more problems in reaching the col. We then returned to Icicle Camp, where we found that the others had arrived according to schedule. It required the rearranging of many boulders to find tent space for the 12 of us that night.

The next morning the move was on. All of us carried loads up the willow-wanded route and after putting in 120 feet of fixed rope on the last steep section for the porters, we reached the col. Protection from the wind was the only thing that our Col Camp left to be desired. As we were eating our "hoosh" that night, the decision was reached to make the summit try early the next morning to take advantage of the excellent weather. Awake at 4:00 A.M. on the 11th, we were off by 5:30 A.M. Since we immediately ran into powder snow, everyone took turns leading and making the steps. It was a relatively broad ridge for the Cordillera Blanca and more tedious than difficult. That was true at least until shortly after lunch when we found ourselves face to face with the last 100 feet. George summoned himself to a great

NEVADO CHOPICALQUI, 20,998 FT.
Northwest face, showing Laguna Camp in the foreground.
Photo, L. Ortenburger



DICK IRVIN *(left)* AND DAVID MICHAEL *(right)*
in the Chopicalqui icefall.
Photo, L. Ortenburger

effort at this point and half kicked and half swam his way up the very steep powder and through the cornice to the summit. We may have set a record that day in that all eight of us reached this 21,000-foot summit, which commanded a magnificent view. When the mists temporarily cleared, we could see nearly the entire range from Huantsan (20,981 ft.) to the south, to Nevado Santa Cruz (20,535 ft.) to the north. Jubilant, we descended, reaching Col Camp just at dusk. By the evening of the 13th we were all back at Base Camp devouring such luxuries as canned pineapple and bacon.

Now we had only two objectives left in the Yanganuco: the Huandoy group and the incredible Chacraraju. It was not clear in what direction our efforts should be directed since we had not seen anything that looked much like a route on either peak. After some serious discussion the next day it was decided to split into two groups and reconnoiter both possibilities. Ayres, Bell, Michael, and Oberlin elected to study Chacraraju, while Creswell, Matthews, and I were to investigate the possibilities of Huandoy. As can be seen from the pictures, the Huandoy problem is simply that of reaching the main saddle (19,200 ft.), separating the South Peak (20,210 ft.) from the north Peak (20,981 ft.) and West Peak (20,853 ft.). On the east, the only side from which we had seen it, this saddle is protected by a 200 to 300-foot ice wall which was continually giving birth to avalanches. There seemed an outside chance of getting around this ice wall either on the right or left. The right side, however, had two more ominous ice walls overhanging it, so no one had much enthusiasm for this route. The left side looked so formidable that discretion dictated that, before we try it, we should at least see what the west side of the saddle had to offer. Two days later Cres, Graham, and I found a precarious perch on an 18,000-foot notch just to the southwest of the saddle and had an unobstructed view of the west approach. Our unanimous decision was that there was not even a moderately safe route here because of avalanche danger. We did see a very steep and difficult route leading to the summit of the South Peak, but this would have been of no value for the North and West Peaks. We reached Base Camp a day earlier than the Chacraraju reconnaissance

party. The next afternoon we learned that they had had even less luck than we. They had found no feasible route. Chacraraju comes uncomfortably close to the "unclimbable" class. Gloom surrounded our discussions at the campfire that night. John Oberlin's vacation time had now run out, so he began his return trip to the United States the next day.

More in desperation than anything else, George, Graham, Georgia, and I decided at least to have a look at the left side of the east approach to the Huandoy saddle. On July 21st we left for Advance Base with our porters. The next day we had a real problem on our hands. It was necessary to find a route up the complicated icefall in the lower Cook Glacier and then discover a relatively safe place for a camp. This was not easy to do since the entire upper part of the glacier seemed to be swept by avalanches at one time or another. In the late afternoon, however, we did find a campsite protected by an enormous crevasse on the uphill side. The theory was that this should swallow any avalanche descending upon the camp. After a worried sleep we got off at 9:30 A.M. to investigate the face above. Considerable step chopping had to be done and the going was slow. The final snow and ice leading to the bergschrund was very steep indeed, so to facilitate descent we installed the first of our fixed ropes at the bergschrund. George and I continued another 120 feet to the first of the rocks and put in another fixed rope anchored to a piton. We rappelled down to the 'schrund and made our way back to camp. We could see that although the route above was steep rock mixed with ice, it should go. However, fixed ropes would be required all the way for safe descent from such a route. The next morning George and I set out early with 700 feet of fixed rope to try to push the route to the saddle. After a hard day of climbing treacherously loose rock held together only by ice, we reached the base of a smooth slab at about 19,100 feet. Since we had now put up all the rope we had brought and it was late, we retreated, rappelling all the way down the face. On the 25th Graham and Georgia went up to finish the job. They reached the slab in good time and began work on it. To reach the top direct-aid climbing was required—this at over 19,000 feet! Quite an accomplishment! With no more great difficulty they reached the saddle after installing another 300 feet of fixed rope.

Our route to the col had been completed! And it had been a splendid example of team work. While the four of us were working on the face, Dick and the porters had been relaying food and equipment up through the icefall to our 18,000-foot camp. Cres had even gone all the way back to Base Camp to fetch additional supplies. On the 26th Fred, Dick, and Cres joined us at our camp at the top of the lower Cook icefall. It was decided that the route above was too difficult to permit carrying full pack (certainly too difficult and dangerous for our porters), so finally Graham, Dick, and I were elected to stay at the saddle for four days to climb as many as possible of the three peaks which are accessible from the saddle. Fred and Cres helped us carry up our gear.

Early in the afternoon of the 27th the saddle was reached without incident. I could see the whole route up to the high saddle (20,350 ft.) between the West Peak and the North Peak—an easy snow slope broken only by two obvious large crevasses. Since the snow was powder, I began to kick steps up toward the high col while Graham and Dick dug into the snow to give our tents some protection from the wind. I continued for a couple of hours and reached a point about half way to the high col. After a lengthy breakfast the next morning we peered out of our tents —there was the ever-present wind, together with cloud and light snow. The other two decided to wait another day before trying the peaks.

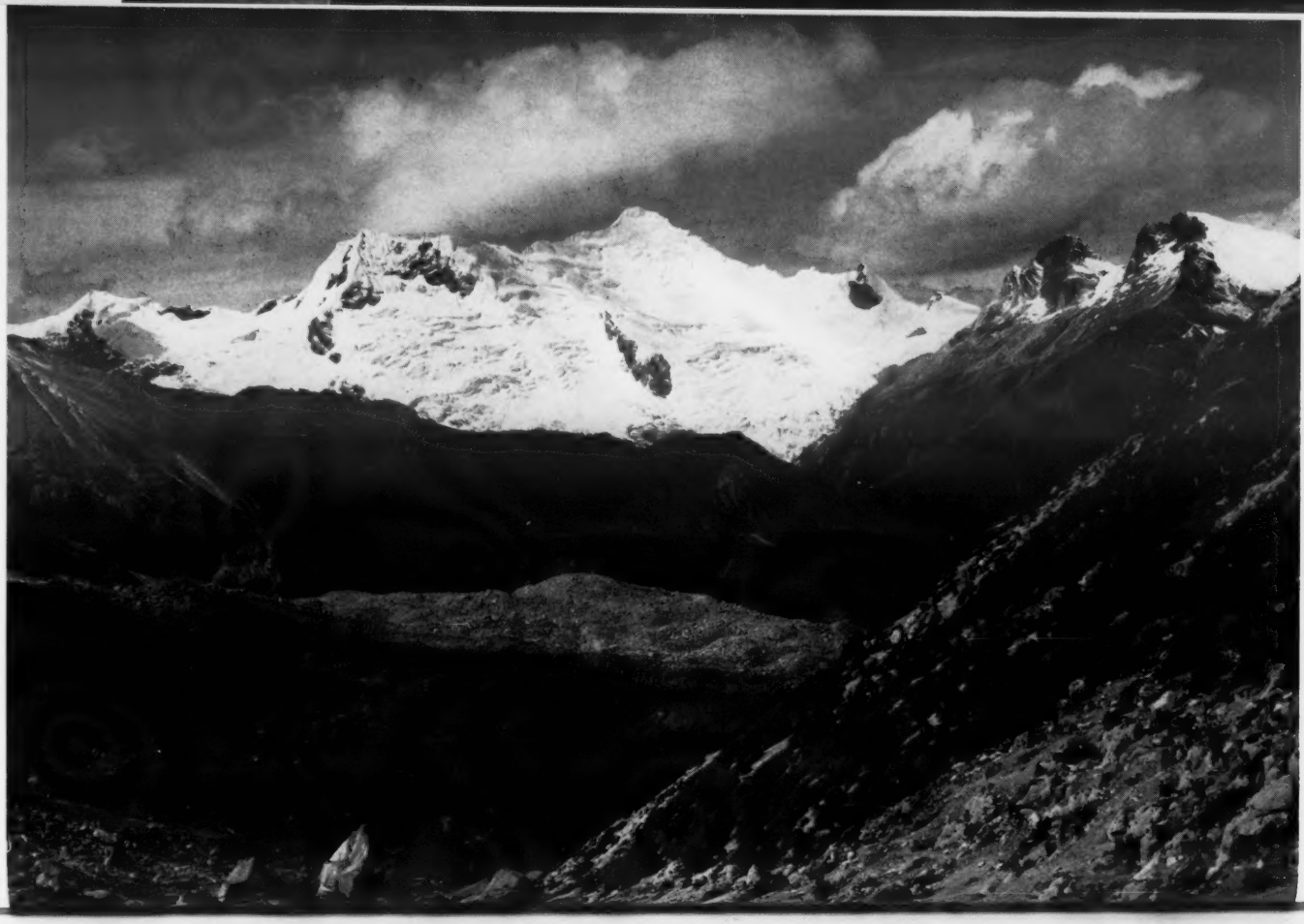
However, not wanting to waste the day, I thought I would go up and finish kicking steps to the high col in preparation for the climb the next day. As I neared the col, the snow became even worse than before, a breakable crust with knee-deep powder beneath. Before too long I was on the col looking down 6,600 feet to beautiful Lake Parron. Looking up at the West Peak (20,853 ft.), I could see that it was a straightforward matter of chopping steps up a steep snow face. The thought then occurred to me to kick and chop steps toward the summit until I tired, thus making things easier for the next day. Somewhat to my surprise, a couple of hours later I found myself at the summit. It was almost a mathematical point of snow with a fearsome view down the sheer north face. Unfortunately the cloud was still with me, so I had no view to the east. But, since this peak pro-

jects west of the main line of the range, I did have an uninterrupted view of the Callejon de Huaylas, the great valley that parallels the Cordillera Blanca. The descent was made without difficulty since I had cut enormous steps all the way.

Up the next morning at 9:30 A.M. we were astonished to see Fred, Cres, and Georgia arriving from below. They had decided to join us and climb the North Peak in one long day. And a long day it was! After reaching the high col, we had to cross only one more crevasse. But in order to reach the top we first had to cross the unexpected summit plateau since the highest point lay at the other end of this flat area. I believe that all of us who reached the summit that day agree that never had we had a summit view to equal it. With Santa Cruz, Artesonraju, and the Pucahircas to the north, the amazing Chacraraju to the east, Chopicalqui and Huascaran to the south, and the slender West Peak to the west, it was incomparable! The three who had come up from below had to hurry down to reach their camp before dark. It was quite a feat—they climbed from 18,000 to 21,000 feet and back in one day over a very difficult route. Graham, Dick, and I took our time on the descent. When we reached the high col, Dick decided to repeat the climb of the West Peak, following my steps. This he did in short order and soon we were back at our miserable little camp.

The next day, when it became clear that no agreement could be reached as to the proper route on the south peak, Dick and I descended to the 18,000-foot camp. Graham wanted to stay another day to make the third ascent of the West Peak. Late the next afternoon he joined us. By now we had all been at this camp so long that we were beginning to get shell shocked. If someone rustled a sleeping bag, the cry of "Avalanche!" would be heard and three people would try to get out of the tent door simultaneously. We were grateful to get back to Base Camp the next night. The ascent of the two peaks of Huandoy completed our objectives in the Yanganuco, so we sent two porters down to Yungay to get burros to bring all our food and equipment out of the mountains.

NEARING SUMMIT OF NEVADO CHOPICALQUI, 20,998 FT.
Photo, L. Ortenburger



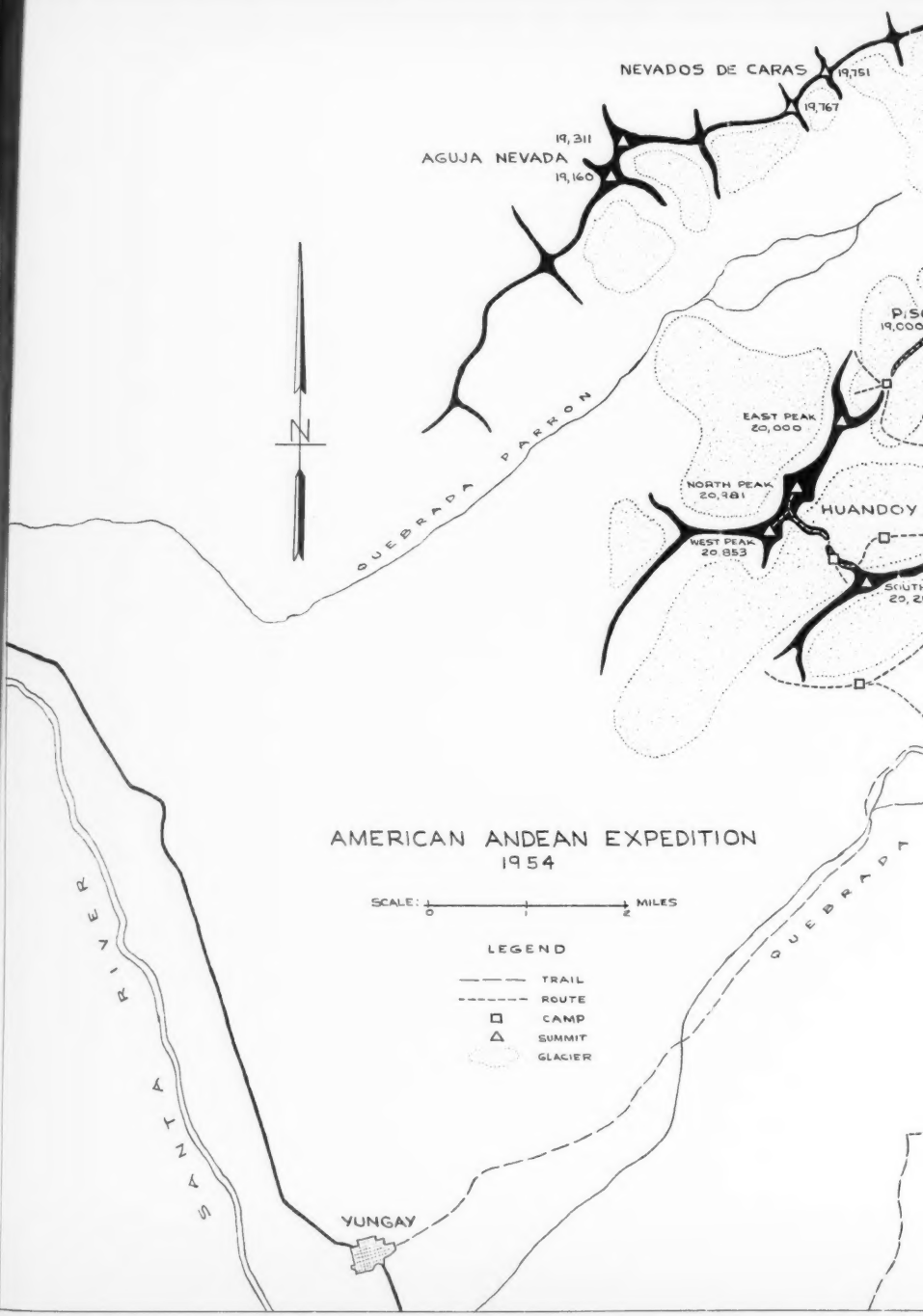
On the night of August 5th we were all back in civilization after 48 days in the Andes. We still wanted to try the South Peak (22,205 ft.) and North Peak (21,834 ft.) of Huascaran. Although both had been climbed three times, they were still worthwhile objectives. Elated by our successes in the Yanganuco, we elected to have the luxury of riding horses to our Huascaran Base Camp at 14,500 feet. It was a pleasant day, gaining some 6,000 feet on the back of a horse. On August 8th the seven of us, together with our porters, carried loads to establish the next camp which would be halfway to the great saddle (19,737 ft.) between the two peaks of Huascaran. Fred and Georgia had been chosen to stay at this camp and try to find a route to the saddle the next day. The rest of us returned to Base Camp to relay more supplies. We arrived from below the following day before Fred and Georgia returned from their exploration above. They brought back word a few hours later that the center of the icefall would not go—they had been blocked by a great wall of ice extending from one side of the saddle to the other. That evening we discussed the problem and concluded that the right side held out more hope than the left and that George, Cres, and I should go up and look for a route.

At about this point things became complicated. A party of Peruvian climbers joined us and set up their camp about 100 yards from ours. This was the same group which had climbed the South Peak in 1953, using the route found by the Mexican expedition. On the descent the Mexicans had left a fixed rope over a particularly difficult ice wall and this the Peruvians had used to make the ascent four days after the Mexicans. This time they were interested in the North Peak and planned to follow our route, if we found one, and use our steps and fixed ropes. Late on the morning of the 10th the three of us left, followed by the Peruvians with full packs. After some excellent ice work by George, we reached a point only a few hundred feet below the saddle; it was high enough to see that there were no further difficulties. We descended and put in 300 feet of fixed rope to make the route safe for the porters the next day. In the mean-

YANAPACCHA, 17,913 FT., FROM WEST
Photo, L. Ortenburger

time the Peruvians went on ahead and set up their camp at about 19,100 feet in order to attempt the North Peak. This they did while George, Graham, Georgia, Cres, and I, together with three of our porters, carried up equipment for our saddle camp (19,500 ft.). Dick had become sick with some kind of respiratory ailment and it was thought best for him to go down to Yungay before it became any more serious. Fred volunteered to accompany him down.

While the rest of us were pushing upwards the next day, we met the Peruvians returning from their successful climb of the North Peak. Luckily we found an excellent sheltered campsite just short of the crest of the saddle. Eliseo Vargas, one of our porters, accompanied us when we climbed the South Peak of Huascaran on August 12th. The first part of the climb showed a definite lack of route-finding talent. The South Peak rises in several tiers, usually with a large crevasse separating one tier from another. The problem was to get from one of these to the next. After spending several hours in a zig-zag route in the first 1,000 feet above the saddle, we finally broke out on the broad slope leading to the summit. We were now beginning to feel the effects of altitude. The breakable crust was exasperating. The slope seemed interminable. It was convex, so that every time we topped what we had fervently hoped was the summit, we were only disappointed by the view of more and more snow rising gently above us. Then I noticed that those who were ahead had stopped. When I measured off the last few steps to the top, I knew why the others had hurried down, spending only a very few moments on the summit. Up to now there had been a goodly wind, but certainly no worse than what we had encountered on Huandoy. At the very top there was the strongest wind I have ever met in the mountains. It was now 5:15 P.M. with only an hour of daylight left. There was no time to be lost. I took off my pack in which I was carrying my 4 x 5 Linhof camera, to take a few pictures, and to my astonishment, although it weighed about 20 lbs., it scooted along on the snow, pushed by the wind! After taking three pictures, as I recall, I rushed down the slope to join the others. Darkness overtook us about halfway down, but fortunately a full moon lighted our way. When we reached our


NEVADOS DE CARAS
19,751
19,767
19,311
AGUJA NEVADA
19,160
N
QUEBRADA PARRON
EAST PEAK
20,000
NORTH PEAK
20,381
HUANDOY
WEST PEAK
20,853
AMERICAN ANDEAN EXPEDITION
1954
SCALE:
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1
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MILES
LEGEND
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ROUTE
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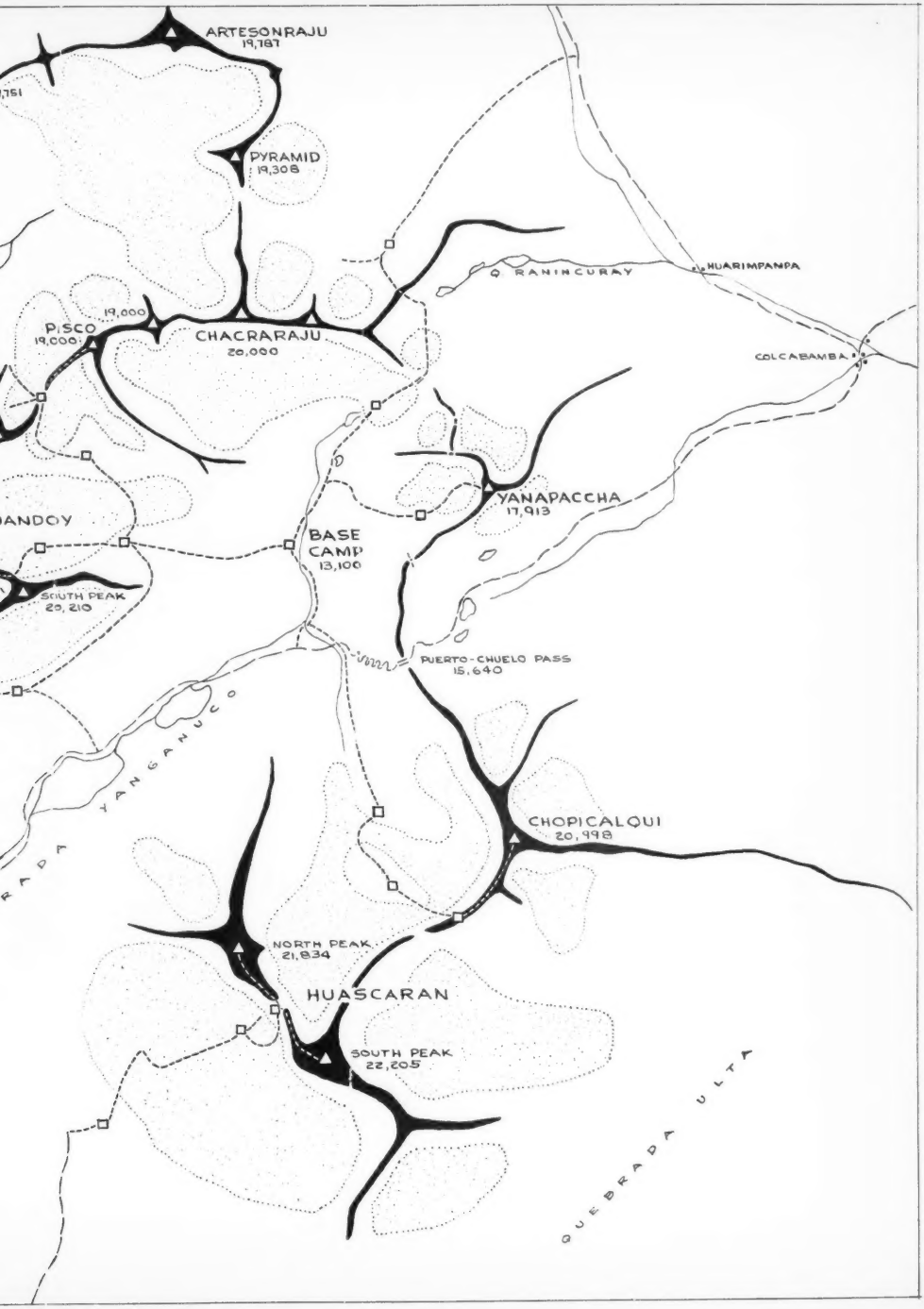
SANTA RIVER
YUNGAY


ARTESONRAJU
19,787
PYRAMID
19,308
Q. RANINCURAY
HUARIMPANPA
19,000
PISCO
19,000
CHACRARAJU
20,000
COLCABAMBA
YANAPACCHA
17,913
BASE
CAMP
13,100
SOUTH PEAK
20,210
PUERTO-CHUELO PASS
15,640
CHOPICALQUI
20,998
NORTH PEAK
21,834
HUASCARAN
SOUTH PEAK
22,205
QUEBRADA ULTA

camp at 8:30 P.M., we knew that we had put in a day's work. George had hot tea waiting for us. Because of the failure of the batteries for his electric socks,* he had had to turn back at about 20,000 feet. There was no justice in this since it was largely because of George's skillful ice work that we were able to reach the saddle.

In our absence a second Peruvian party had arrived and had set up a camp on the saddle, having used our fixed ropes and steps. They, too, wanted to climb the North Peak. About 10:00 A.M. the morning after our climb, one of them, Alberto Morales, appeared at our tent and said that two of his men had fallen into a crevasse and that we should come up and rescue them. Although very tired from our climb the day before, we went up to the saddle and pulled the two out of the crevasse. Fortunately for them, the crevasse had a floor and they were not injured. Even after this incident Alberto and another of his party, Alfredo del Arroyo, wanted to climb the North Peak, so Cres and I offered guide service for the next day. Two of our porters, Eliseo and Eugenio, also wanted to go with us, making six in the party on the 14th. The North Peak is a much more straightforward climb than the South Peak. We reached the summit in only four hours but were greatly disappointed by the clouds which enveloped us at the top. We had hoped to get some good photographs of the Huandoy group, but it was not to be. We found a large Peruvian flag near the top, which Alberto soon took down and replaced by an even larger one. The Peruvians couldn't understand why we didn't have at least one United States flag with us. After all, what good is it to climb a mountain without a flag?

This ascent ended the climbing of the American Andean Expedition 1954, the descent to Yungay being completed in two days. After packing up our gear for shipment back to the United States, we all went our separate ways, for the summer had come to an end. We could consider our expedition a success and we had fortunately avoided serious illness and mountaineering mishaps. The first ascent of the highest unclimbed peak in Peru,

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*George's feet had been frostbitten on K2 in 1953.

the West Peak of Huandoy, 20,853 feet, had been accomplished. We had not climbed the South Peak of Huandoy or Chacraraju. The former can certainly be climbed from the main Huandoy saddle, but Chacraraju is another story. It will require an all-out assault by a strong party who are willing to accept a certain amount of risk. To climb either of its two summits would be a major accomplishment. But the Cordillera Blanca will remain one of the finest climbing areas in the world, regardless of the fate of this particular summit, for it is only one spectacular peak among the many.

Summary of Statistics

Ascents: Yanapaccha, 17,913 feet, first ascent, June 23, 1954; Ayres, Creswell, Irvin, Matthews, Michael, and Ortenburger.

Nevado Pisco, ca. 18,875 feet, third ascent, June 29, 1954; Ayres, Bell, Creswell, Irvin, Matthews, and Oberlin.

Chopicalqui, 20,998 feet, second ascent, July 11, 1954; Ayres, Bell, Creswell, Irvin, Matthews, Michael, Oberlin, and Ortenburger.

West Peak of Nevado Huandoy, 20,853 feet, first ascent, July 28, 1954, Ortenburger; second ascent, July 29, 1954, Irvin; third ascent, July 31, 1954, Matthews.

North Peak of Huandoy, 20,981 feet, second ascent, July 29, 1954; Ayres, Creswell, Irvin, Matthews, Michael, and Ortenburger.

South Peak of Huascaran, 22,205 feet, fourth ascent, August 12, 1954; Creswell, Matthews, Michael, Ortenburger, and porter Eliseo.

North Peak of Huascaran, 21,834 feet, fourth ascent, August 14, 1954; Creswell, Ortenburger, porters Eliseo and Eugenio, Alberto Morales, and Alfredo del Arroyo.

Personnel: Dr. Fred D. Ayres, Dr. George I. Bell, Alexander E. Creswell, Richard K. Irvin, W. V. Graham Matthews, David Michael, John C. Oberlin, and Leigh N. Ortenburger.

Mt. Deborah and Mt. Hunter: First Ascents

FRED BECKEY

DURING our expedition this spring to the northwest face of Mt. McKinley, the subject of unclimbed major Alaskan peaks often arose, and since it seemed likely that Henry Meybohm and I would have time for further climbing in the northland, the problems of challenging Mt. Deborah, the 12,540-foot showpiece of the Hayes Range, and massive Mt. Hunter, the 14,573-foot giant nine miles south of McKinley, were often discussed. On our return to Fairbanks we met Heinrich Harrer, who had similar aspirations on his tour of the territory.

Our plan, developed after a careful study of maps and after discussions with other mountaineers, was to take the train to McKinley Park Station with three weeks' food, and there meet pilot Don Sheldon of Talkeetna for the flight to the Yanert Glacier at the western foot of Deborah. On a pre-arranged later date, we would then have him fly back and take us to Talkeetna for the flight to Mt. Hunter. With luck and good weather, we hoped to make a quick attempt on both peaks with this aerial support, rather than risk the time and attendant problems of the long overland approaches on foot.

Mt. Deborah

Very early June 17th a green Piper Super-Cub, equipped with ski wheels, circled over our tent at the McKinley Park airstrip. It was time to break camp, and I soon left for the first flight to

the glacier. We flew high over the Yanert River, over the rolling tundra uplands; then came the great glacier and a myriad of splendid ice peaks. Ahead, the complex ridges unravelled the shadowy bulk of Deborah, by far the largest peak in sight. I tried to study the route we had selected from photographs, but was soon so occupied in selecting the best landing spot on the glacier that I formed only a quick impression of relentless ice walls and knifed ridges. Soon we dropped and straightened out for a landing on a smooth area of snow. There were a few bumps at first, but the craft soon slid safely to a stop. We climbed out into the bright morning sun, at 5,500 feet, barely two miles from the first great icefall on the mountain. What a way to reach such a remote peak, I mused, as the pilot wheeled around and began his take-off for the others! I sat on the pile of equipment for two hours, reading, for it was quite unsafe to walk around alone on the glacier.

By late morning we had arranged our loads, taken food for five days, and left a residual cache at the landing spot. Roping together, we set off across the flat, crevassed glacier, tramping forward slowly since our legs sank almost to the knee at each step. As the hot sun began to disperse the morning mists, we began to catch glimpses of the great peak ahead. Certainly it was larger than we had anticipated, and it was apparent that there was considerable distance between the various icefalls on the west face.

Deborah is roughly pyramidal, with long approach ridges from the south and west. The other exposures drop in great walls of ice and rock, but between the confluence of these ridges on the west the upper portion of the Yanert Glacier makes a high basin on the mountain, which appears to be the only feasible approach to the summit itself. Both from the south and west are fragile crests of ice that sweep to the summit, and it was up one of these that we fixed our hopes of a successful ascent. But the immediate problem was to establish a camp near the 9,000-foot level in the upper glacier basin, west of the summit. By then, we felt, it would be possible to make an accurate decision regarding the final route.

From its level approach to the abrupt walls of the peak the

glacier trough rises in two very distinct icefalls. The first, rising perhaps 1,500 feet, and attempted by previous parties, reminded me of Byron's "frozen hurricane"; none of us had any inclination to go near its labyrinth of unstable séracs and rubble of fallen ice. Only on the left did it appear possible to circumvent the icefall. A long rock ridge and a snow traverse seemed to offer a route off to the side of the dangerous ice. A closer inspection at its foot, however, made us apprehensive of its dangers as well, for the ridge was much steeper than had first appeared, and in the afternoon there was considerable rock falling from the walls.[1] A 2,000-foot couloir veered steeply up to the left, alongside the ridge. Now it was the bed of loose snow avalanches, several of which thundered down its channel, but evening shadows would, we judged, freeze the surface to a degree of safety.

We napped the remainder of the afternoon on air mattresses, cooked a simple dinner, and at seven began to crampon our way up to the 45° couloir. The condition of the surface changed often from harsh, uncompromising ice to channels of loose wet snow, where the big slides had rushed down. While we selected a potential exit from its walls, our first thought was to climb to the ridge and from there traverse the rock crest east toward the peak. When we reached the ridge, tired from our long climb with heavy packs, we attempted to worm our way up over a pointed obstacle of rock, but after an hour decided there must be a better and less exposed route. Retracing our steps about 400 feet, we climbed to the rock at the edge of the steep lateral ridge; here, we thought that we might climb its walls. Once over them, we knew the route would be clear to a point above the great icefall. Leaving our packs on a ledge, we climbed the 200-foot wall of the ridge and, because of the exposure, I placed three pitons for safety. Once we were up, a Tyrolean traverse was arranged to haul up the loads. By sunrise our entire stock was atop the ridge, and it remained only to traverse a long snow slope to the glacier and our first camp.

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[1] On the descent we found a route safe only at night or during frozen conditions, between the icefall and the lower slopes of the ridge; it diagonals across the rock of the lower ridge from the lower edge of the icefall to the point where the glacier again levels.

That evening we moved camp above the second icefall, a task that required only three hours. There were many and varied forms of snow, ranging from dry crystalline, which we came across in drifts, to crusted surfaces which broke through at each step; often they were covered with surface hoar. Directly under the precipitous west summit ice wall we placed our highest camp. The sun was just setting, and a few billowing clouds added a dramatic note to a zenith of color, a changing kaleidoscope of faint blue, pink, and gold.

June 19th dawned clear and brilliant; the weather from the north seemed to be holding up well. We slept in until nine, then cooked and prepared to make an all-out assault on the summit by way of the south ridge of the peak, rather than the western ridge, which we had discounted as being a poor alternative. While it was probably more difficult than our proposed route, it certainly was longer in its exposed sections and was rendered more dangerous by poor snow conditions.

As we climbed laboriously up the intricate slopes of the third icefall, there seemed to be a grace and vitality in the slopes glowing from the reflection of the sun on the crusty snow. Too often, though, we broke through the crust, and in a few hours became thoroughly aware of the additional strain. There was a key crossing at a difficult bergschrund, but once beyond this point there were only steep slopes and crevasses between us and the crest of the south ridge. At 3:00 P.M. we peered over its fantastic edge, to see for the first time such summits as Mt. Hayes and Mt. Hess. But our eyes turned to the beautifully proportioned form of the summit spire, gracefully outlined amid a background of blue. The one-half mile of ridge to the top held out little encouragement. Winds had built it up to a razor-like edge, almost scallop-like in its profusion of humps and pinnacles. Of the precipices on either hand, that to the east is steepest, but that to the west is amply appalling in magnitude. It was far too precipitous to consider crossing at a safe distance below the cornices. This left us with little alternative but to crawl along the corniced top as best we could. For six hours we did just this, always with the

MT. DEBORAH FROM NORTH
Ridge of ascent seen left of summit.
Photo, B. Washburn

possibility of a cornice breaking off to tumble us down a 5,000-foot slope of 75°. The other side was equally dizzying, but somewhat smoother; one might even slide unharmed several thousand feet to the bergschrund! Such were our depressing thoughts as we voted at least to try the ridge.

Soon the crest showed its mettle. Harrer hacked his way over some fantastically steep pinnacles, some of them completely overhanging the eastern edge. In what seemed like hours, we exchanged leads; I found slightly better going along the left edge of the ridge, and it was possible to climb safely with the 12-point crampons and good belays. As the ridge steepened again, we had to cut steps. This was a team climb; if anyone slipped, the others would have to leap over the opposite side of the ridge. How to get up three vertical ice steps near the summit was a provocative question. The steep slope of ice on the left would require hours of chopping and the use of many ice pitons. I was prepared to do battle, but welcomed Meybohm's suggestion that he try to cut a channel directly up the steps. At least we could belay safely. Chopping vertically upward to remove masses of rotten ice so that a ladder of clean steps could be made, he worked his way up the narrow pillar-like wall. It was hard work, but success was near. *As we stepped onto the summit at 9:45 P.M., it was our unanimous conclusion that Deborah was the most sensational ice climb anyone of us had ever undertaken.* But with the equally difficult return imminent there was no feeling of either sophistry or great elation, for as Lunn has written, "self conquest rather than mountain conquest is the secret of our strivings."

The setting sun, barely above the horizon, made everything terrestrial seem to fade into insignificance. The biting cold began to take its effect as we lingered to admire the grand view—it was time to descend. Even with the steps carved and aided by a few rappels, it took over four hours of fast climbing to get off the ridge. The climb had been a delicate one, and we felt years younger once on the the relative safety of the glacier.

On our way to base camp the next day we encountered a weather change and the accompanying drift of fog. This not

MT. HUNTER *(left)* FROM EAST AND MT. FORAKER
Photo, B. Washburn

only delayed us, but the pilot too, and it was not until the 24th that he could land to fly us out. In Talkeetna, the weather turned worse; we began to appreciate the clear period we had had on Deborah. Finally, on June 29th, the clouds seemed to break up to the west, and on flying toward Mt. Hunter we saw the entire Alaska Range basking in broken sunshine. Our air course took us over the Tokositna country and then over some rugged peaks to the upper Kahiltna Glacier. Again there were busy moments as we attempted to study the route and at the same time locate an area for a safe landing. We landed about 1½ miles west of Hunter, in the level area (alt. 6700 ft.) between it and the bulk of Foraker. It is best to make these summer glacier landings very early in the morning, while the crust is still hard. Unfortunately, we were delayed, and by the time the craft was ready to leave, the crust had softened to an extent that it required twenty minutes of taxiing on the glacier before the plane gained sufficient momentum for the take-off. For a while, we were certain we would have to feed another man!

Mt. Hunter

Mt. Hunter[2] is a massive summit with cliffs four to seven thousand feet high separating it from the comparatively level slopes of the Kahiltna and Tokositna Glaciers.[3] With complete confidence in the aerial studies and the report on the most feasible route by Bradford Washburn,[4] we based our entire hopes on the long west ridge. When the plane left us that morning on the Kahiltna Glacier, we pitched our Logan tent, stacked up our food supply, and set out to explore the lower section of the ridge with light packs.

The long clutch of winter seemed entirely gone as we weltered in the hot sun while crossing the glacier. The snow even clung to our snowshoes, and often we sank into hidden crevasses. Of

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[2] See footnote about the naming of Mt. Hunter: *AAJ*, 1953, bottom of page 478.

[3] Exact altitudes of peaks in this range have not yet been finally agreed upon by the U.S. Geological Survey and the U.S. Coast and Geodetic Survey. Elevations given by the U.S.C. and G.S. are at present: Mt. Hunter (North Peak) 14,573 ft., (South Peak) 13,966 ft.

[4] See "Mt. Hunter via the West Ridge: A Proposed Route" by Bradford Washburn: *AAJ*, 1953, pp. 478-484.

several potential routes to the ridge crest at 9,100 feet we chose a little glacier trough that carved a path between two granite walls. It was exposed to some falling debris, but except for one badly broken area seemed quite safe. In this particular place it was necessary to clamber about for a half-hour on some steep slopes to bypass a great bergschrund, but then the glacier sloped back again. A steep 200-foot snow wall brought us to within sight of the crest. At its highest point a pinnacle blocks progress, and after a certain amount of exploration we found a route through some granite blocks, climbed down a hundred feet, and made three rappels to the narrow col on its east side. Here we left a cache, secure in the knowledge that we had conquered the uncertain problems of the first third of the ridge.

Though it stormed suddenly the next day on July 1st, the toneless snows sparkled into a mosaic of glittering light. Leaving only a cache of food for the return, we carried heavy loads up the established route and descended en rappel to our cache. Adding this to our packs, we continued up the narrowing and corniced ridge, and because of the weight we were carrying, we were but barely able to get over a vertical snow wall at the peak of the 9,550-foot hump on the ridge. Then, traversing along the crest, we came to a steep drop-off where we had to cut steps in ice to descend. At a little col adjacent to the big rock step in the ridge we pitched the tent. Fortunately, we were able to locate some flat, loose stones and build a level platform for the tent. If it is not covered by snows, it could be of service to any future party.

One of the chief problems of the ridge is the granitic rock wedge that rises for the next 500 feet. We explored it that afternoon in a flurry of snow, leaving a cache at the highest point and putting in three fixed ropes. Generally, we found it best to keep a hundred feet south of the crest, but at the middle section, we had to climb some difficult cracks and a chimney, including some overhang. When it came time to bring up our packs, it was necessary to haul them up a 50-foot chimney, a key point on the climb of this ridge. Needless to say, belays were in order the entire distance. On the final push to the highest camp at 10,600 feet we were fearful of the snow surface atop the glare ice of the steep ridge slopes, so waited until the sun left them in the eve-

ning before beginning the ascent. There is ample light to travel all night, for at this latitude the rose-pink sun poises below the rim of the horizon for only a few hours and the sky remains suffused with light. As we had hoped, the steep wall at 10,000 feet was well crusted; we were able to crampon up it with but a few steps, though the points bit into hard glare ice. Even more exposed was the great ridge sweeping to a point at 10,600 feet. Here we had to cut away a swath of drifted snow on a very steep slope, hew out many steps, and place an ice piton for safety. This slope ranges from 45° to 70° for several hundred feet and is best overcome with a fixed rope.

As if to remind us of the cornice danger, a large section of drooping ice broke off almost adjacent to us as we plowed along a level stretch of knee-deep snow on the ridge. Secure in the knowledge that there was no further danger at this exact spot, we decided to place our final camp here. It was midnight and our feet were becoming cold; so the tent was put up, and then without loads we reconnoitered a route over the next ridge hump and along the dangerous cornices to the saddle beneath the final ridge of Hunter. Several tension rifts cracked as we broke the tracks along the ridge; we carefully stayed as low off the ridge as we possibly could, always keeping on the alert for a break and the necessity of a lightning-quick belay.

The weather, which had been unsettled, now definitely looked good. In high spirits we went to sleep. Our plan was to rest through the day and start late in order to climb on the steep, dangerous slopes after the sun had left them. Accordingly, we left camp at 4:30 P.M. on the 4th, taking with us down clothing and large lunches.

The long and very exposed ice slope rising from 10,700 feet to 11,500 feet proved the most difficult on the climb. The surface was unstable, and to climb safely we had to place ice pitons and chop bucket belay stances 13 separate times. In this manner, by climbing on the front four prongs of our crampons, we did not have to chop steps on this very steep ice slope. Beyond came more cornices, steep and short ice pitches, followed again by still more cornices. It grew very cold and the rope became stiffly frozen. Above was the great ice wall blocking the ridge off from the 13,200-foot upper plateau, and beneath it tumbled an array

SOUTH RIDGE OF MT. DEBORAH
Harrer leading at 12,000 ft.
Summit at upper left.
Photo, Fred Beckey

MT. HUNTER
View southeast down summit ridge.
Photo, Fred Beckey

of crevasses in every direction. From all studies this was a problematical area—if one were blocked by the great wall the entire route would end there! We approached hopefully and kept looking at a large longitudinal crevasse entering the wall directly above the ridge. As we reached its height, we saw that it afforded a route on its sloping side; the "Golden Gate," as we named it, proved a godsend, for it was an avenue to the upper plateau. Any other route to the summit would have been next to impossible; this one worked out readily.

Crossing the half-mile of level névè was tedious because we kept breaking through to the knees. Never had we seen snow conditions such as these. Even on wind-blown ridges one would break through, and only on the steepest slopes was there hard ice. Between midnight and four we plodded across the slope, attempted the corner of the summit ridge, turned back for the west face of the summit pyramid, and climbed a very steep loose snow slope to the final crest. On the last stretch we came into the glorious radiance of the full morning sunshine. Hunter had been climbed! It would be difficult to imagine a more beautiful view than that afforded by the summit. It was warm enough to take off gloves and jackets, and for an hour we rested and photographed. The glittering surrounding summits provided a fascinating study, and of course McKinley and Foraker were resplendent. We agreed that the entire region was one with a great mountaineering future, for there are dozens of very intriguing high summits within its scope. We thought, too, that Hunter would still have fascinated us had we tried any other route. The other faces and ridges, from our vantage, offered virtually no hope at all. Hunter had been a great climb!

After 20 hours we reached camp again. Ice pitons and chopped ice anchors had enabled us to rappel down the steepest slopes. Now it only remained to descend safely, a tiring process which we did on the 6th. Again we rappelled on the steepest rock and ice slopes to save time and be safe, but at best descending with a pack is very awkward. Below 8,000 feet the snow slopes avalanched badly, and we had to start several slides in order to

MT. DEBORAH *(left)* AND MT. HAYES
Route on Deborah along upper left skyline.
Photo, B. Washburn

make the terrain safe. Once below the threatening sérac wall, we were out of danger. A fog came in, signifying a weather change. Fortunately our old steps showed through well, and we reached the base cache without incident.

Travelling down the Kahiltna Glacier 30 miles, most of it over terrain never touched by man, was a speculative undertaking. The first six miles required nine hours, because of very bad snow conditions and heavily crevassed areas. We continued on for nine more hours and by the end of the day had reached the great bend, some 18 miles from camp. On the 9th, from a camp on the medial moraine, we continued on the ice ribbons but were forced off in five miles by bad crevasses; here we had to ford a difficult stream. Later, we travelled along brushy river banks, walked along lateral moraines, forded streams, and became involved in several thickets of slide alder. On the last day we struggled through the bushy upland tundra near Dutch Creek, ate hungrily at a mining cabin, and crossed a high divide of the Dutch Hills to a placer mine on a depleted "cat" road. The owners welcomed us to a hearty supper and our first comfortable sleep in some time. Incredibly quickly, it seemed, the 44 miles were behind, and in a few hours of walking, there would be a road.

A Word of Caution

The ascents of Mt. Hunter by the west ridge and Mt. Deborah by the upper south ridge involve some alpine problems not generally encountered on most other difficult Alaskan summits. These warrant a few precautionary words as to the risks involved and the responsibilities of the climbers.

Aside from the accepted risk of a slip from a physical miscalculation on steep ice and the requirement that a climbing party be competent to climb safely and belay for long stretches on ice which approaches 70° and is vertical for short distances, the three principal alpine problems relating to the peak itself concern timing, cornices, and avalanches. These are individual problems and dangers, but are closely interrelated, as one may be a function of the others.

It was our experience that surface conditions on the windward slopes of the ridges traversed were less susceptible to slid-

ing during the hours when they were protected from direct sunlight by physical features. In the early morning hours before the sun was hot enough to thaw the frozen surface and after sundown we found most slopes safe for climbing. When temperatures rose, the slopes often became unsafe. Very fortunately, the semi-darkness of an Alaskan summer permits all-night climbing, a factor which should be considered in the scheduling of any traffic on slopes with avalanche danger. The immensity of the dangerous cornices forces the climber onto the exposed, open slope of the ridge and, at times, onto long and very steep open walls. On Deborah the ascent of the basal couloirs to bypass the first icefall is definitely unsafe until the surfaces above are frozen. On Hunter the lower portions of the climb may be almost physically impossible, except during the colder hours, because of the soft, steep snow.

We planned the ascents of both upper ridges so that the dangerous passages were undertaken after temperatures had dropped and we felt justified in risking the slopes. Were it not for the approach of fog, we should have delayed the ascent of the final ridge of Deborah two more hours. Climbs from a high camp require a 12- to 20-hour round trip and may lack some of the photographic opportunities otherwise available, but they are generally safer. The west slope of Deborah's south ridge began to solidify well after 6:00 P.M., but the south slope of Hunter's west ridge did not always harden until after 9:00 P.M. Though we arrived on the summit shortly after sunrise, the morning sun, being to the east, did not soften the ridge on the descent until late morning.

There is no intent here to debate whether or not the traversing of some of the great cornices encountered is a legitimate risk, but the climber should accept the fact that cornices are unpredictable even to the most experienced mountaineers. Because of the size of the cornices and the narrowness of the ridges, it is often essential to climb only well down on the windward slope. At times the climber is forced near the crest. Obviously such places are dangerous, and in our case, served to re-align our route just below, but as close as possible, to the imaginary fracture line. Needless to say, it is quite a nervous experience to step through such a hole, but comforting to know one is solidly be-

layed. Our anchors and chopped stances on Deborah served to speed and safeguard the descent, at a time when vigilance is often relaxed.

On Mt. Hunter the cornices were so huge that it was necessary to remain far below the crest in certain places. At point 10,800 feet we kept two rope lengths from the edge, but received a great scare from surface settling—possibly a slab formation on the prevailing windward slope. Three times we heard, and once saw, a cornice loudly crack, but not collapse, almost at our knee level. One fracture crack ran right above the steps of a previous reconnaissance. At one place there was a crest cornice atop a flattened, wide ridge which collapsed almost at our feet, despite the fact the cornice rose only some 15 feet atop a flat ridge. At Point 10,600 feet, where one has to climb a great wall and overcome a lateral cornice-wall, one is exposed to the danger of a general collapse of the entire edge of the slope, which acts as a cornice of its own; a small portion of it broke as we maneuvered to belay atop the point.

Summary of Statistics

ASCENTS: Mt. Deborah, 12,540 ft., Hayes Range, Alaska; first ascent, June 19, 1954. Mt. Hunter, 14,573 ft., Alaska Range, Alaska; first ascent, July 5, 1954.

PERSONNEL: Fred Beckey, Heinrich Harrer, and Henry Meybohm.

The First Traverse of Mt. McKinley

A First Ascent of the South Buttress

MORTON S. WOOD

DURING the summer of 1953 Elton Thayer, then a ranger at Mt. McKinley National Park, began plans for a new attempt on Mt. McKinley by the South Buttress[1] route. There had been considerable speculation as to the feasibility of this approach, but since Belmore Browne had been turned back at the head of the West Fork of the Ruth Glacier in 1910, no one had attempted it again for over 40 years. Elton's spare time during the winter of 1953-54 was devoted to planning this trip, which resulted in an extremely well-organized expedition. By early April our group of four was organized and equipped. The party consisted of Elton Thayer; George Argus, a climbing instructor at the Big Delta Arctic Indoctrination School; Leslie Viereck, then serving in the Army at Fort Richardson in Anchorage; and myself. All of us had made our homes in Alaska and had attended the University of Alaska at some time. Elton had done considerable climbing in Alaska and the Yukon, including the first ascents of King Peak and Mt. Hess. George Argus had spent a season with the American Geographical Society's Juneau Ice Cap Expedition. Les Viereck had been with Elton two years before on a reconnaissance trip on Mt. Drum in the Wrangell

[1] EDITOR'S NOTE: In the *A.A.J.* 1947 (pp. 283-293) Bradford Washburn began an experiment by writing an illustrated analysis of two proposed and supposedly possible new routes on Mt. McKinley, via Wickersham Wall and the West Buttress. This was followed in *A.A.J.* 1952 (pp. 358-362) by a similar account of a proposed new route up the West Buttress of the North Peak

Range and had done a great deal of hiking in McKinley Park during his two years as a temporary ranger there. I had been on McKinley in 1947 but had not reached the top because of altitude sickness. I had also done some climbing in France and Switzerland and in the Alaska Range.

On April 17th, the four of us began the long hike from Curry on the Alaska Railroad to the Ruth Glacier. This was the last we were to see of civilization for almost six weeks. Our packs weighed between 70 and 80 pounds, and contained rations and gas for ten days and all the equipment we would need for hiking the 40 miles to the Great Basin of the Ruth Glacier. Here we planned to have my wife, Ginny, make us an air drop from our Cessna 170 airplane four days after our departure. She was to drop us 30 days' rations and all our high-altitude climbing equipment.

Elton's wife, Bernice, had made us two very strong and lightweight tents, a two-man size and a three-man size. These worked out excellently through the entire trip and showed no sign of wear, despite hard usage and strong winds.

As soon as we had hiked the first mile, we realized how optimistic had been our estimate of four days to the Great Basin. Dense alders, willows, cottonwoods, and devil's club combined with deep wet snow to make progress exasperatingly difficult and slow. We were lucky to find an ice bridge on the Susitna River, over which we belayed each other. Had we been a few days later, we would not have been able to cross at all, since the cable bridge was completely rotten and useless. After a day and a half

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of McKinley. In *A.A.J.* 1953 (pp. 478-484) he analyzed a route up Mt. Hunter in similar fashion, and in *Appalachia* (June 1954) (pp. 20-28) he undertook an analysis of the long and complicated ascent of the South Peak of McKinley via Ruth Glacier and the South Buttress—essentially the route attempted unsuccessfully by the Parker-Browne expedition of 1910. Elton Thayer carried with him an advance manuscript and pictures of this article from *Appalachia* on the dramatic expedition described above.

These analyses were all made on the basis of Washburn's intimate knowledge of the region and a careful study of oblique and vertical stereoscopic aerial photographs. Altitudes were secured from semi-final computations for his new map of the area, now approaching final form. It is of interest to note that four out of five of these complex and difficult routes have now been climbed successfully. Two are described in this issue of the *Journal*. There have been few major deviations from the routes as originally analyzed. For references, see bibliography at end of this article.

of miserably difficult snowshoeing we arrived at the confluence of Troublesome Creek and the Chulitna River at about 6:00 P.M. on the evening of the 18th. We had been obliged to use our snowshoes during the entire trip, and in the heat of the day one could never take more than two steps without knocking off the heavy mass of wet snow that adhered to them. This condition continued for the 50 miles to our base camp.

We woke each morning at 4:00 or 4:30 A.M. to take advantage of the coolest hours of the morning when the snow was hard. April is the ideal month for climbing on the south side of McKinley, but the first of April would have been better than the 18th. The weather was already uncomfortably hot during the day. We saw bear tracks on Troublesome Creek and evidence of over-browsing of the willows by moose.

Despite hiking long hours we were still five miles below the air-drop site in the Great Basin when Ginny flew over on April 22nd. She signaled that she had observed the large "SAT" signal which we stamped in the snow, indicating that we would reach the basin by Saturday—two more days.

The warm sunny weather continued as we made our way around to the east of the lowest icefalls, past Glacier Point, and through the Great Gorge. This section would be very difficult if not impossible to negotiate much later in the year because of the tremendous size of the crevasses.

Evening of the 22nd saw us camped about halfway up the Great Gorge on smooth glacier covered with hard-packed snow. The temperatures that day had been 18° at 5:00 A.M., 44° at 2:30 P.M., and 14° at 6:00 P.M. We got up at 4:15 on the 23rd while the sun was just painting the tops of the tremendous granite cliffs that rise vertically from the flat icy floor of the Great Gorge. A brisk wind and temperature of 16° encouraged us to hike as fast as possible the remaining distance to the Great Basin, where the hot sun could reach and warm us. We were amazed to see old wolverine tracks at this elevation, about 20 miles from the end of the glacier, and speculated why these animals so frequently wander high up on the ice fields of Alaska.

The Great Basin of the Ruth Glacier is an almost flat desert-like expanse of ice, fed by dozens of glaciers which rise near the

crest of the Alaska Range. All this ice funnels down the Great Gorge as one solid ribbon, the Ruth Glacier. We picked out a suitable air-drop site, then spent the entire afternoon drying out equipment, melting snow in the sun to increase our water supply, and resting after our forced march. We measured the temperature on the surface of a dark-colored air mattress and found it 106° in the sun while the air temperature in the shade was only 31°!

The next day dawned clear and beautiful, a break we hadn't dared hope for. Such a long uninterrupted spell of clear weather would be unimaginable a month later, after the air had warmed up for the summer. Ginny flew over at 7:30 A.M. and dropped the first load of bags from about 50 to 100 feet above the glacier. She returned with the remainder of our supplies at 9:30 A.M. The drop was very successful, and no damage to our equipment or supplies resulted. We disliked being dependent on air support, which is in turn dependent on good weather and calm air, but this particular climb would have been too difficult without it. To relay loads the 50 miles from Curry to our base camp at the head of the West Fork of Ruth Glacier would have been impractical.

Leaving behind a cache of ten days' food and gas, we took one load of supplies about three miles up the West Fork of the Ruth Glacier and returned to our air-drop camp. The next day we broke camp and moved it on past the previous day's cache a few miles beyond Mt. Huntington (12,240 ft.). We continued this leap-frog system all the rest of the way up the South Buttress, and thus our camp was never more than a half-day's climb away from our relay load of food and gas. The next day we returned for the relay loads and brought them up to a spot just below a crevasse which at first looked impassable to us. We left our packs below it and went back to bring up camp.

The next morning we set out to find a way to cross the crevasse which extended completely across the glacier from the north wall of sheer rock to the south wall of jagged ice blocks. We never felt safe going very near the south edge of the glacier. Hundreds of tons of ice hang above it on the precipitous sides of Mt. Huntington. We heard and saw many avalanches along

this canyon wall. We began to realize that this route would be too dangerous in any adverse snow conditions, as the height of the steep walls on each side of the glacier exceeded its width. To find safe campsites would then be impossible.

Elton and George, tied into one rope, explored to the south as far as they dared and found nothing but impassable séracs. Les and I went to the right along the rim of the crevasse to the edge of the glacier and found one possibility which would involve climbing down to the wide bottom of the crevasse, then cutting steps up the other side. If this could be done, I could see that we would be able to reach the other side by digging a short tunnel up through the ice and snow of the overhanging lip. This we did and, upon emerging into the daylight again, called for Elton and George to climb down and tie their packs onto the rope which Les and I lowered to them.

Getting ourselves and all our gear up through the tunnel consumed considerable time, but by 10:00 we had arrived at what appeared to us the least dangerous spot for our base camp. Before us rose the sheer walls of the head of the canyon. Blue ice slopes of 50° to 70° pitch, icefalls, and rock cliffs led us to dismiss the possibility of this originally proposed route. Our previous study of the aerial photos had given us no idea at all of the fantastic height of this canyon's sides. We had seriously underestimated not only heights but also the steepness of the route. Immediately to the right, the slope was covered by two icefalls several hundred feet thick which were obviously the source of the many ice blocks covering the glacier. Farther around to the right and directly above our base camp we could see our only possibility. The slope, which rose at about 45° and was broken by several icefalls, also had smooth areas which looked safe for as high up as we could see. We went back for our relay load and had returned to base camp by 2:00 P.M., giving Elton and me time enough for a short reconnaissance up the slope.

The temperature next morning was 0° and the sky still clear. Starting up with our relay loads, we found the ice crusty and not strong enough to hold a piton but too strong for kicking steps. At 1:30 we cached our loads and returned to camp, arriving at

5:00. That night snow began to fall and continued lightly throughout the 29th, forcing us to remain in camp all day. Had the snowfall been heavy, we would have had to abandon the climb because of avalanche danger on the slope above us.

By morning of the 30th, the weather had improved and we moved our camp load up to the spot where we had cached the relay loads. Beyond this the slope became steeper and ice conditions improved enough to enable us to anchor a fixed rope with pitons. After cutting a few steps and belaying each other carefully, we emerged on top of the ridge and soon found a good location for Camp I in a sheltered basin behind a snowdrift. Here we had our first close view of the spectacular south face of Denali and the South Buttress which loomed high above us and which we would have to climb. The temperature at this higher elevation was —8° at 7:00 in the evening. The next day we brought our relay loads up to the camp by 2:00 and had enough time left to scout out a route over the narrow ridge which lay between us and the so-called "Peak 13,050'."

On May 2nd, we broke camp at 6:00 A.M. and carried our relay loads across the narrow ridge, along the terrace behind Peak 13,050', and located a site for Camp II in the saddle between this peak and the impressive slope of the South Buttress. The ridge proved no problem at all and we returned for the camp load at 9:30 A.M. On the second trip from camp a strong wind arose and made establishment of Camp II a very slow and difficult proposition amid the blowing and drifting snow. We all felt an extreme sense of relief to be at last out of avalanche danger and high enough to see something besides the steep canyon walls that had surrounded us on the glaciers below.

The next day dawned clear again and Elton, George, and I started up the South Buttress slope. We found again the same conditions of soft and layered ice too weak to hold a piton. The only thing to do was to cut steps and be extremely careful. On

MT. McKINLEY BEYOND RUTH GLACIER
Summit at left, North Peak at right.
Southeast ridge was followed along whole skyline to right ridge of basin in front of North Peak.
Photo, B. Washburn

Top—CONTINUATION OF SOUTHEAST RIDGE
Summit was climbed to left from Camp 7, and descent began to right toward Karstens Ridge and Muldrow Glacier. *Photo, B. Washburn*

Bottom—HEAD OF RUTH GLACIER AND START OF SOUTHEAST RIDGE
Mt. Foraker (17,000 ft.) in background. *Photo, B. Washburn*

some parts of the slope one could get a good belay with the ice-axe shaft, but these spots were relatively infrequent. We chopped steps until cold and fatigue forced us to return to camp where Les had everything dry and well organized. He had also built a snow-block wall around the camp for protection from the wind.

Step-chopping at this elevation (above 12,600 ft.) tired us more rapidly than it had below. We estimated that we had progressed about one-third of the distance up the slope. On May 4th we moved our relay loads up as high as the trail was cut and deposited them among some large granite boulders. We decided to continue climbing among the rocks since they at least provided occasional belay positions, and one could rest without cutting a bucket seat in the ice. As we climbed, the ice became harder, but it would have required at least 50 pitons to make the slope entirely safe, and we had only 12! We used the rocks and ice to our best advantage, however, and by installing three fixed ropes were able to climb in reasonable safety. One of our greatest difficulties was in trying to keep out of the way of falling ice chips dislodged by the lead man cutting steps. We measured the slope with the Brunton Compass and found it averaged about 46°, although some parts were closer to 50°. That day we chopped only about 100 yards of steps in five hours of steady work. On the morning of the 5th, in spite of clouds and snow, we started up again what we called our "Commuter's Trail." By this time we had developed a system for exchanging lead men without untying the rope. Intense cold with strong wind and snow forced us to retreat to camp at 1:00 P.M. when, with only a few more hours of chopping, we could have gained the top of the slope.

That night a storm settled in for good and continued for three days. The violent wind made it scarcely possible to move outside. Our home-made tents withstood the battering of the blizzard with no sign of damage, when it seemed that no fabric could possibly resist such stress as the storm inflicted. The temperature held at about 0°. On May 9th we dug ourselves out to find beautiful weather again. This storm fortunately proved the last bad weather of the trip.

By this time Elton had nicknamed our South Buttress slope the "Lotsa Face," for obvious reasons. Instead of the estimated

1000 feet it seemed closer to 2000![2] We began to wonder if our supplies would permit us to spend much more time on this slope. If we didn't reach the top soon, we would have to turn back or not allow an adequate safety margin in case of storm near the summit. This time George stayed behind to move camp since it was completely buried by snowdrifts. We found that three on the rope were better than four for step cutting, but we were in very poor condition for working after three days of idleness, and it required several hours for us to regain our normal drive. All our steps were drifted in and had to be dug out again. We finally topped the slope at about 3:00 P.M. (14,000 feet approximately). It was reassuring to get another look at old Denali which we hadn't seen for a solid week! We saw a number of different species of birds on the way back to camp that night, including a flock of snow buntings and what appeared to be an owl flapping its wings vigorously and circling in an attempt to gain more altitude to get over the pass to the Kahiltna Glacier. He seemed to be flying at his absolute ceiling of about 13,000 feet. On this descent I counted the steps we had chopped—there were 1038 of them.

May 10th was clear and warm again and we had hauled both our loads to the top and established Camp III by 4:30 P.M. From this point we could see no safe route to the top of the First Buttress Peak (15,000 ft.) above us, but we started up with a load for a closer look. To the right the slope was very steep, solid ice. To the left we couldn't see what the slope was like. Straight ahead there appeared a great cornice reaching out over the slope we had to climb. It would be impossible to avoid the cornice. It looked too big to tunnel through—even assuming it would be safe to walk up under it. As we approached the summit, the most fantastic formation I have ever seen in the mountains stood in our path—a cornice, not an ordinary one of snow, but one of ice! An overhanging glacier if such a thing exists!

Extending about 60 to 80 feet out over the Kahiltna Glacier, it formed a weird ice cave through which we walked and crawled a very long distance. In some places we had to remove our packs

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[2] EDITOR'S NOTE: Stereo-contouring shows it to be 1200 to 1300 feet from campsite to crest of ridge. The steep part of the slope is almost exactly 1000 feet high from the bergschrund to the crest of the buttress.

and push them ahead of us while wriggling on our stomachs to squeeze among the cold blue ice blocks and through the tiny passages. At each turn one almost expected to see stalactites and stalagmites as in a limestone cavern!

When we emerged again in the welcome sunlight, we had gone past the 15,000-foot summit of the First Buttress Peak and were actually on the Buttress itself. This would be Camp IV. When we had our second loads up to this point, we felt our goal was really in sight. Only about two more miles of climbing along the ridge and over the highest point of the Buttress, about 15,850 feet in elevation, remained before we would be on the side of McKinley itself. From this camp we decided not to relay any more. We would somehow carry both our loads together even though they would weigh about 90 lbs. The most troublesome items were our snowshoes which we had to carry throughout the whole trip for use in the descent down the Muldrow Glacier if we could make it over the shoulder of McKinley to the north side.

We left Camp IV at 7:30 A.M., May 12th, with our heavy loads and headed down the ridge. Soon we were confronted by a very sharp 60° section of ridge on the Kahiltna or west side and thigh-deep soft snow. The east side was quite sheer and icy. It dropped almost straight down 5,000 feet to the floor of the West Fork of Ruth Glacier. In the Great Basin, we could see our little cache far below, a mere pinpoint. We had made a long circuitous loop, climbing all the while, and were now not far from our Air Drop Site. Fortunately, I was not in the lead at this point and so will never know whether I could have broken trail over that 50 feet of ridge! George was leading and went right ahead while Elton, Les, and I belayed him.

Never before have I seen a view to compare with that from the top of the Buttress. To the north and west the sheer south face of Denali (a 10,000-foot wall) loomed across the great chasm of the Southeast Fork of the Kahiltna Glacier. Farther to the west, Mts. Crosson and Foraker shone in the sun like diamonds. Mt. Hunter and Mt. Huntington, though now well below us, were none the less spectacular. To the east the wild jungle peaks surrounding the Great Basin seemed to continue endlessly.

That night we camped at the edge of the Great Traleika

Cirque. This was Camp V and our last one on the Buttress. In the morning we had to descend about 1500 feet into the cirque where we established Camp VI (ca. 14,000 ft.). It was immediately evident that the 3000-foot slope leading directly to the crest of the ridge separating us from the valley of Harper Glacier (the proposed route) was a good deal steeper climbing than a pitch which lay further to the right (northeast). This slope (45° to 50°) led to the crest of a subsidiary buttress about a mile long, which juts out at right angles to the main northeast ridge of McKinley, thus forming the right-hand (east) side of the basin which now lay above us. The South Peak of McKinley dominated the other side of this magnificent cirque. That night the temperature at Camp VI was —14°. The next day I happened to be the only one who felt strong, so I cut steps all day. The day following, the situation was reversed and I felt tired and worn out and the others were in fine shape.

It would be impossible to describe my feelings as I surmounted the shoulder (15,700 ft.) and had my first look at the North Side! There below me lay the familiar broad expanse of the lower Traleika Glacier and a little corner of the Muldrow, together with the summits of Mt. Koven, Mt. Carpé, and Mt. Tatum and the rocky side of Mt. Brooks. I could even see McGonagall Pass thousands of feet below me. These peaks were like old familiar friends after the strange, rugged country we had been through. If we could just climb another thousand feet higher, we would be on the pass from which we knew we could get down to the Harper Glacier, whence it would be a short four-day trip down the mountain and out to Wonder Lake through the familiar and well-loved country of McKinley Park. The summit of Denali at this point did not seem important. What mattered was the attainment of that pass which meant we wouldn't have to retrace the thousands of weary steps back the way we had come. We could forget the Chulitna, the Tokositna, and the Susitna, which had been frozen in April but which would now be swollen torrents. Above all, we could forget the "Lotsa Face."

After a few hours of scrambling over and among giant granite boulders on the ridge and a climb up a steep snow slope, we were at last on the pass. We had made it! There below lay the

Harper Glacier looking like a highway. We went to bed that night with a tremendous feeling of well-being. We were at 17,200-foot Camp VII and we wouldn't have to carry our packs any higher! We realized that, not the summit, but this pass had been our objective.

The next day, May 15th, we left camp at about 7:00 A.M., carrying only cameras, some clothes, and a lunch, and hiked up to the summit, arriving at 2:00 P.M., and were back at Camp by 4:30 P.M. This day seemed a complete anti-climax after the previous day's elation over reaching the pass. The tedious ascent of the South Buttress had so thoroughly acclimatized us that we were hardly affected by the high altitude. The temperature at High Camp was —16° in the sun. We considered climbing the North Peak, too, but decided against it as we were behind schedule.

On May 16th, we broke camp and made the easy descent down the Harper Glacier in warm sunny weather. We picked our way cautiously down the Cockscomb on Karstens Ridge, kicking steps ahead of us all the way. The snow conditions were not good. There was not enough loose snow to present an avalanche danger on the ridge, yet too much to permit firm footing. As the ridge steepened, conditions became worse, with ice too soft for pitons but too hard for an ice-axe shaft belay. George's ice-axe, as well as mine, had been broken earlier and repaired with tape. We descended Karstens Ridge one at a time with three belaying while one moved. At the steep pitch at 12,800 feet there was a fixed rope fastened to wooden pickets, left from a previous climb. This we used for added security as it was in excellent condition. George was leading, I was second, then Les, and finally Elton came last on the rope. To avoid a particularly bad part of the ridge, we skirted below the crest along the north side where the slope was less steep. Suddenly Elton slipped and began to slide. Since we were all in belay positions, we should have been able to stop his fall if he had been in any position but last on the rope. The best belays we could get were with the pick of the axe dug into the snow-covered ice. When I saw Elton slide past, I braced myself to be able to hold the point and pay out rope gradually in case Les should be dislodged from his position. In seconds he was

pulled loose and my belay was not strong enough to hold two men. This all happened in a flash. After that, I only remember tumbling end over end in the loose snow, now and then being pulled by the rope and always unable, because of the heavy pack, to roll over on my stomach and dig in my axe to check the fall. It was like a bad spill while skiing in powder snow except that it seemed to last for an eternity. I remember once falling free in the air for at least a second or two and then landing on my pack in deep snow. It was not at all an abrupt jolt but rather a soft and glancing blow. More sliding, rolling, and another long free fall—then suddenly silence except for the gentle hiss of the snow that was still in motion all around me.

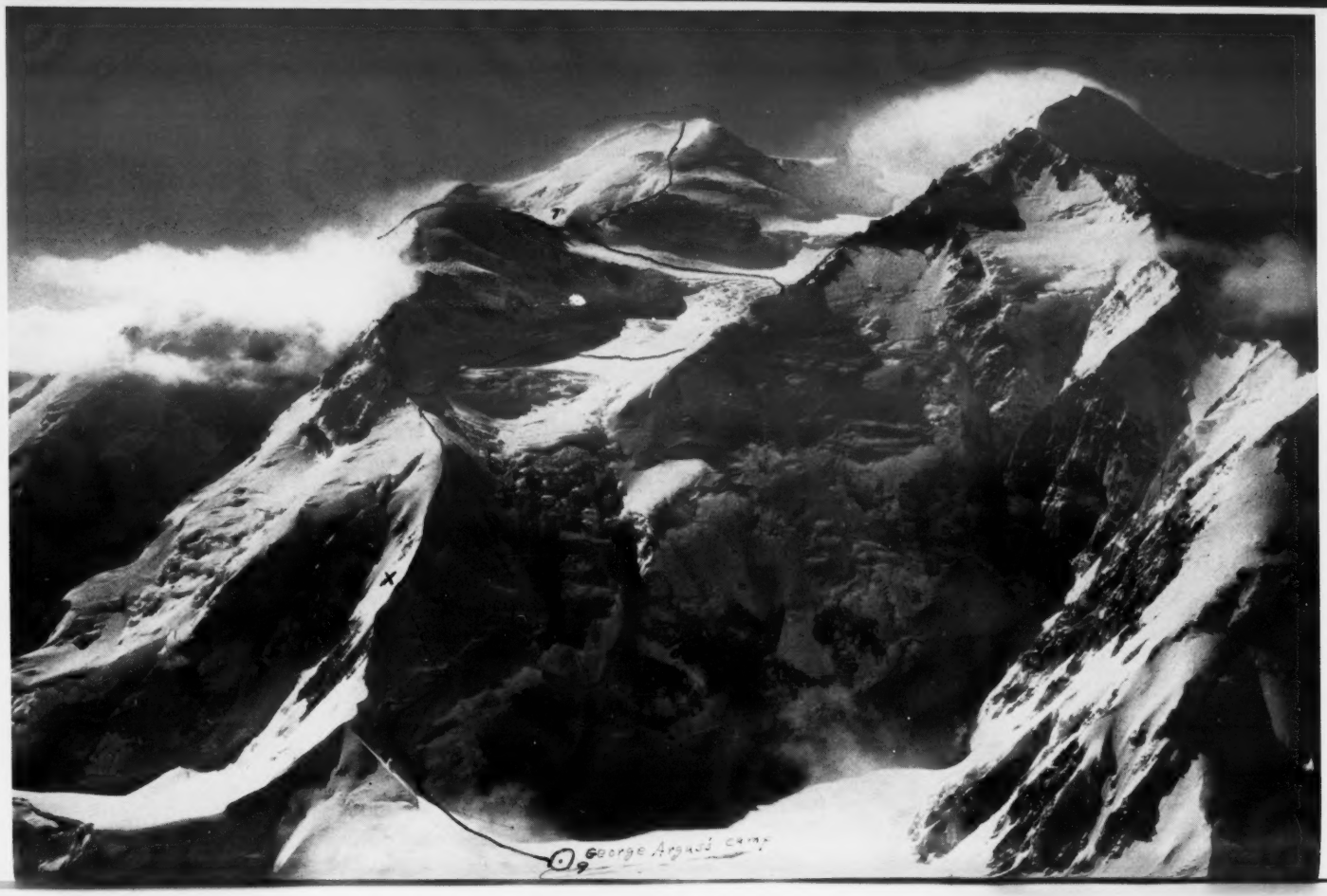
I didn't see how I could possibly still be alive because I had seen this slope from below on a previous climb and knew approximately where we had fallen. My eyes and mouth had been filled with snow from the start, so I could see nothing at first. I was only conscious of a constriction of my chest.

The rope—I must cut it so I can breathe again! I brushed the snow out of my eyes and reached in my pocket for my jackknife. It was gone. I still had my pack on although the magnesium frame was smashed into about ten pieces. I was standing waist-deep in loose snow and something was pulling on the rope around my chest. I looked below me. There was George, sitting quietly in the snow. Where were the others?

I looked up for the first time and saw that Elton had fallen over a vertical outcropping of ice about 15 feet high and was hanging from the rope. I knew I had to get him down from that ice wall, although I felt weak and could hardly breathe. Finally, by pulling with all my strength, I gained enough slack in the rope to loosen the bowline-on-a-bight and get free. Just than I saw Les standing—dazed but on his feet, thank God—about 40 feet above me. Shouting to him that we must get Elton down, I

Top—**THE GREAT CORNICE AT 15,000 FEET**
Mt. Hunter (summit to right) and at the distant right the 40-mile long Kahiltna Glacier down which Beckey and Harrer walked after their Mt. Hunter climb.
Photo, M. Wood

Bottom—**CAMP 7 AT 17,000 FEET**
Ascent to summit (at left) and descent to Karstens Ridge began from here.
Photo, M. Wood


George Argand camp

began to clamber up the steep slope toward him. We put an ice-axe in the snow, took a belay around it, while I cut the rope with Les's knife and lowered Elton. I then half slid and half scrambled down again to where he was lying. I felt for his heart. He was dead! A feeling of nausea and weakness swept over me. I felt like giving up. I remembered how I had seen him on the rope. It must have broken his back instantly when it had caught him up.

Since there was unfortunately nothing more I could do for Elton, I turned my attention to George who was still sitting in the snow below me. He complained of pain in his legs, one of which was doubled under him. I thought he had a broken leg and therefore shouldn't be moved until I was sure of his condition. But I had to get him a few feet down the slope to a less steep spot where I could erect a tent. The tent! I wondered if we still had it. Equipment was strewn all around us up and down the slope, half buried in the snow. I was more worried about freezing than anything else. We were all in a state of shock and the sun had set behind the North Peak, leaving the air very cold and clear.

In my scramblings up and down from Elton to George I had been collecting bits of equipment here and there. I still had my wolf mittens tied around my neck, but George and Les had lost theirs. I dug Elton's mittens out of the snow and gave them to Les, then put mine on George since I had another lighter pair. Very gingerly I began to straighten out George's legs. Although this hurt him, it did not pain him as much as it would have if his legs had been broken. This at least meant that I could safely pull him 50 feet down the slope. My pack most fortunately still contained my sleeping bags, air mattress, and the three-man tent, although almost everything else had been thrown from it in the fall. Placing George on an air mattress, I covered him with my sleeping bags for the time being. He was only half conscious and his front teeth had been crushed in, making his speech very

SUMMIT TO HEAD OF MULDROW GLACIER
About 10,000 vertical feet.
Dotted line off Karstens Ridge shows where party fell 800 feet.
Photo, B. Washburn

blurred. I then turned to Les who, though still very weak, had been helping me. He complained of pain in his chest, but he could walk slowly so we began gathering equipment and piling it near George. After climbing the hill once again, I found Elton's pack and dug it out. We never did find Les's sleeping bags and air mattress. In our weakened condition it took a long time to hack out a level platform big enough for the tent, but we finally accomplished this and somehow got George into the tent and erected it over him. I cooked us some supper with our battered cooking kit and primus stove. With George's felt boots and canvas mukluks off and all of us in sleeping bags at least my worry about freezing was over. None of us suffered frostbite.

The next day we were able to have a good look at our position. We had slid probably 800 to 1,000 feet down a slope to a spot just above where it became much less steep and thus almost formed a sloping bench. Apparently our fall had been stopped by Les who had landed in a crevasse.

George's appetite was good, but it was necessary to feed him. On examination I could find no leg fracture but concluded that he had a dislocated or broken hip. His knees were also damaged. Moving around caused him considerable pain, but as long as he lay still he was reasonably comfortable.

We remained in this camp for six days, waiting for George's condition to improve, hoping someone would read our stamped-out messages in the snow. We were now overdue and knew Ginny would be looking for us in the plane. Finally it became apparent that increasing avalanche danger from fresh snow made it imperative that we get off this slope. On May 22nd, Les and I began to make a trail down to the head of Muldrow Glacier a thousand feet below us. If we could make a safe enough path, we might be able to drag George down it.

The slope disappeared below, so we couldn't see whether we would be able to find a route all the way down. We knew that directly below us was a vertical rock face four or five hundred feet high. We traversed in a long diagonal descent, plowing a deep furrow in the snow. This would be a slide or chute down which we would belay George. It looked feasible except for one spot which was so steep that all the snow had avalanched off.

Beyond this lay a crevasse which was tilted enough to enable us to crawl along its lower side. After this came two steps about five feet high in solid ice, then a gradual slope in soft snow down to the level glacier. We climbed back up to camp wondering whether we should risk an attempt to get George down that slope. He had improved a great deal in the week since the accident, but still could not move his legs. We had two good air mattresses, both our tents, one climbing rope, and considerable quarter-inch rope in addition to the fixed rope which was still tied onto Les's ice-axe after the fall. Elton's ice-axe had been broken in two places and George's had been lost. We realized that if we couldn't get George down, no one else could. Anyone looking at this slope from below would rightly conclude that it was too hazardous. More lives would only be endangered, and after all we had gotten ourselves into this mess and it was up to us to find a way out of it.

We wrapped George inside the tent on top of two air mattresses and under all the padding we could gather, then tied six loops of small ropes around him so that any pull we exerted would be distributed evenly over his body. The main objective was to keep from bending his legs at all. Our climbing rope we then looped around and tied to each of these six ropes. Before we started, I marked the spot where we had buried Elton by nailing the remains of my pack board about eight feet high on the ice face over which he had fallen. Our hearts were indeed heavy when we left him that day. We then tied into our rope and began pulling George down the slide. All went much better than we had dared hope for, until we came to the steep icy section of the slope. Progress then consisted of one of us moving, inch by inch, while the other belayed George. At one point the slope was so steep that it was not possible for Les, who was behind, to slacken his rope without causing George's head to point downhill. We finally solved this by chopping a trough in the ice. To this day I don't see how we got George over that slope safely. It is amazing what one can do if the necessity is dire enough!

We were immensely relieved to reach the safety of that tilted crevasse with an overhanging roof. This was the first time in six days that we had been safe from a possible avalanche. We cut

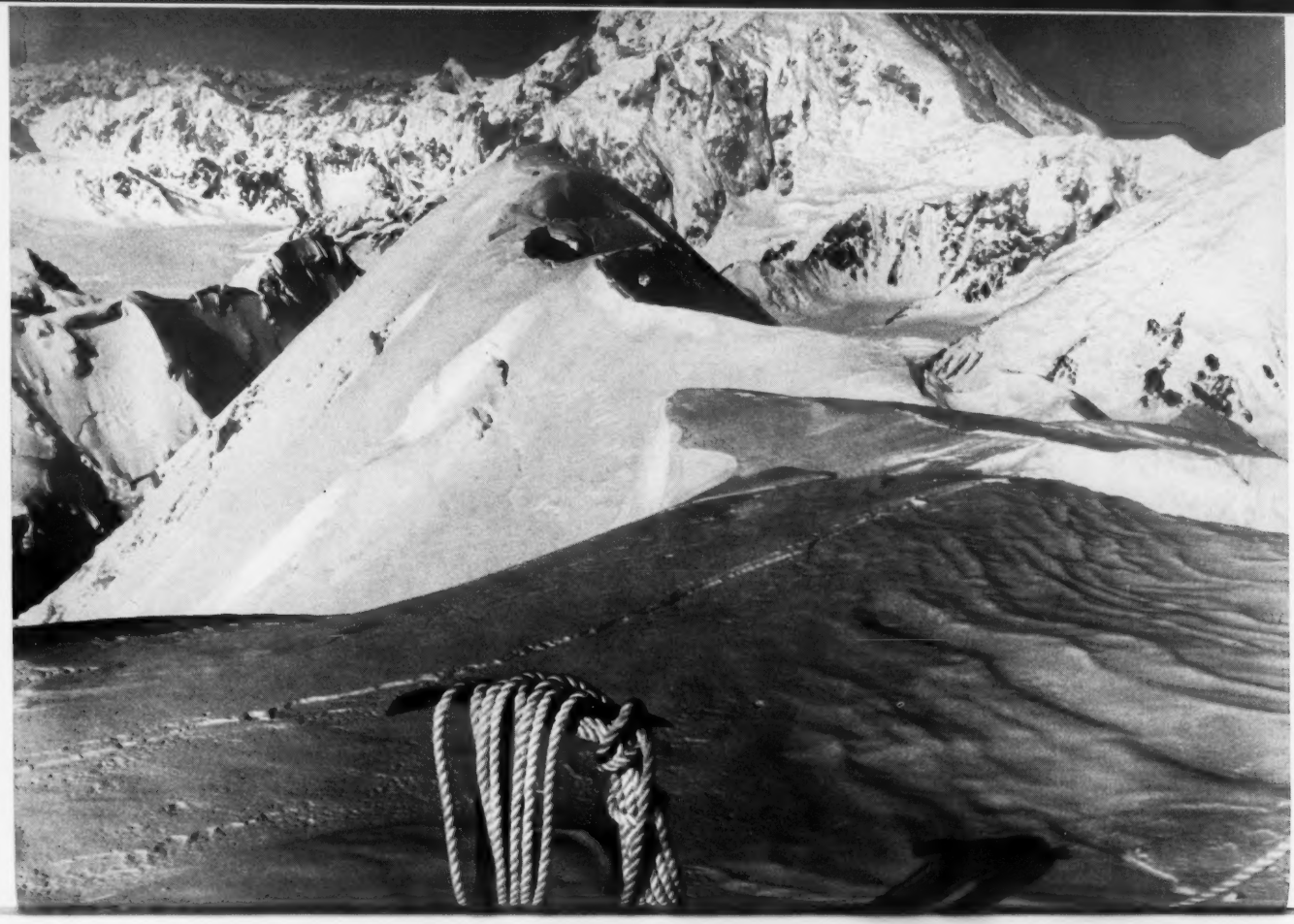
two more troughs in the ice to get George over the two steps, and then just at sunset we descended the last 100 yards of gentle slope to the glacier. I had never before appreciated level surfaces quite as much as I did that night when we could again camp on flat ice. We dragged George a distance out onto the glacier to be safe from falling snow and ice. It was much colder here than it had been above. Our thermometer had been smashed, but we estimated that the temperature was 0°.

We were so cold and tired that night that we overslept the next morning and were awakened about 6:00 A.M. by the sound of a plane! I dove out of the tent with the remaining piece of my signalling mirror which, although broken, was still usable. The nearest sunlight was 100 yards away and, as I ran headlong for it, I saw our Cessna about 2,000 feet above us coming from the west. I reached the sunlight and got a flash on the plane as it passed overhead and disappeared behind Mt. Carpé. Ginny was concentrating her search on the south side of the mountain as she had no way of knowing that we had made it over the pass. Our trail on Karstens Ridge had long since been covered with snow.

It was now obvious that the only thing for us to do was to leave George, much as we hated to, and hike out as quickly as possible to get help in evacuating him. One man alone could not move on the glacier. He was now able to cook and eat alone and could reach everything in the tent. We even improvised a bed-pan for him from a gallon gas can. If Les and I left now, George would have plenty of food for about ten days, which he could make last for two weeks if necessary. We had, however, only one quart of gas left. We had discarded one gallon at the 17,200-foot camp and carried down four quarts. One can had been smashed in the fall. We therefore left George almost all the food, including much which needed no cooking, and the quart of gas. We figured the gas would last him a week. We took with

Top—**UNCLIMBED PEAKS IN THE GREAT GORGE**
Photo, M. Wood

Bottom—**DEPARTURE, McKINLEY PARK STATION FOR CURRY**
left to right—George Argus, Elton Thayer, Morton Wood, Leslie Viereck.
Photo, M. Wood



us only some oatmeal, a few bars of chocolate, and five Logan biscuits. With this small amount of food we would have to make it to Wonder Lake in about two days.

At noon Les and I began walking down the Muldrow. The glacier was more crevassed and broken up than I had ever seen it. By 3:30 the next morning we had reached McGonagall Pass. Here we slept about four hours, ate a Logan biscuit apiece, and at 8:00 left the glacier and began hiking down Cache Creek. We walked all that day and the next night the 20 miles across the tundra, fording the McKinley River at 4:30 on the morning of the 25th. Upon arriving at the McKinley Bar cabin, we slept for two hours and cooked up some food with which fortunately Elton Thayer had personally stocked the cabin.

We had been assured by Road Commission personnel that the Park Highway from the railroad to Wonder Lake would be open by the first of May at the latest, so we never doubted that we would be able to stop a car. Wearily, we trudged up the last hill to the road.

No tracks! The road was still closed! The prospect of walking another 85 miles to the railroad was at this point almost too much for us to bear. If we could only sleep! I thought how Lindbergh must have felt on his Atlantic flight. But, worst of all, this would mean four days' delay in getting help to George. There was only one other person in the whole Kantishna country besides ourselves—little Johnny Busia who lived all alone in his cabin four miles beyond Wonder Lake. We trudged on down to Kantishna. Our feet were very sore and tired. We had hiked about 130 miles since leaving the railroad at Curry.

Suddenly, while resting at Johnny's cabin, we heard a voice calling from across the river. It was Oscar Dick, the Chief Ranger, who, with Superintendent Grant Pearson, had shovelled through numerous snowdrifts to make the first trip of the season in a Power Wagon. They drove us in to the station, arriving at 10:30 that night.

A party was immediately mobilized, consisting of Dr. John

SOUTHEAST RIDGE AT 14,000 FT.
Mt. Foraker about 8 miles distant.
Photo, M. Wood

McCall,[3] who had climbed McKinley in 1948, and Fred Milan, who had been with George on the Juneau Ice Cap, and five Army men from the Arctic Indoctrination Center at Big Delta. These men were flown by helicopter up the Muldrow Glacier to between 5,000 and 6,000 feet. The party was supported by air drops from Air Force and Army L-20's. Exactly one week from the day we had left George, the rescue party reached his tent at the head of the Muldrow after an exhausting effort. He still had food for another week and enough gas for four more days. He greeted John and Fred with a cheerful invitation to join him for a cup of tea. The party evacuated George on a sled to a point near McGonagall Pass at about 5600 feet. From here he[4] was flown by helicopter from the glacier to the Kantishna Airstrip, then relayed to Minchumina and Fairbanks by plane.

Our success in climbing Mt. McKinley by the South Buttress must in all honesty be attributed in a large part to our unprecedented good luck with weather and snow conditions. I would never encourage anyone to climb the mountain by this route, as it is not, in my opinion, either safe or practical.

An analysis of the accident leads one to a consideration of all the factors involved. Try though I have, I can't think of anything we would have done differently just before the fall, had we known it was going to happen. The hour was late and we were tired, but we had several hundred yards to go before we could reach the first possible campsite. We shouldn't have been on that slope in such bad snow conditions, yet to have re-climbed the 2,000 feet to Browne's Tower would have been perhaps more dangerous. I believe it a bad policy ever to descend a mountain by a different route from the one used for the ascent, if this route is at all difficult. However, to have returned all the way to Curry over the way we had come, presented many more hazards than this one ridge.

Not often can four people live together so intimately under such trying conditions as this trip imposed without ever experi-

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[3] Dr. John McCall, glaciologist and professor of geology at the University of Alaska, died of polio November 5th at Fairbanks, Alaska.

[4] EDITOR'S NOTE: After months in the hospital George Argus is out and about, having largely recovered from his injuries.

encing the slightest frictions or personality conflict. I have never seen or climbed with a more compatible and congenial group than ours.

Of Elton Thayer it could be said that climbing to him was a deep spiritual experience rather than a mere struggle to accumulate as many ascents or impress others with his feats. He climbed because he loved the mountains and not because he wanted publicity, acclaim, or recognition. Few among his many friends ever realized the great depth and strength of his character, but all appreciated his sincerity and complete integrity. He had less a feeling of conquering mountains than of communing with them.

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Summary of Statistics

ASCENT: South Buttress, Mt. McKinley, Alaska; first ascent, May 12, 1954.

PERSONNEL: George Argus, Elton Thayer, Leslie Viereck, and Morton S. Wood.

McKinley, Northwest Buttress

DONALD H. O. McLEAN

It was rather unusual that both routes first attempted by Dr. Frederick Cook over 50 years ago were successfully climbed this year. At meetings of the Alpine Club at the University of Alaska, Elton Thayer, Charles Wilson, and I discussed the possibilities of a spring trip via these two routes. We agreed that if one could choose a "best month" for climbing McKinley, it would be late April or early May. Elton was sold on the southern approach and could plan an earlier departure than either Wilson or I were able to manage. As we two favored the Northwest Buttress, the two expeditions were born.

A major drawback of the northwest route was the late arrival of the sun on the northern slopes of the mountain, particularly early in the year. All but the peak would lie in shadow until 11 A.M. The mountain, lying only three degrees south of the Arctic Circle, would have a considerably lower mean temperature for the month of May than for July when most expeditions tackle it. There was no telling when or where the winds would be worst. Perhaps the greatest attraction and greatest obstacle lay in the series of three rock outcrops along the ridge at 11,000, 13,000, and 15,000 feet.

We planned to land a ski plane on a frozen lake at the foot of the Straightaway Glacier only 20 miles from Peters Basin, where the real climbing would begin. There, at 8,000 feet, we would establish base camp and receive an air drop of supplies.

After various misfortunes we were able to organize a group of

five men anxious to make the top: Bill Hackett, Fred Beckey, Henry Meybohm, Charles Wilson, and myself.

We left Fairbanks on May 2nd by chartered plane, headed for Lake Minchumina, 200 miles distant. Most of our supplies had previously been sent to Minchumina by air freight. Dick and Jean Collins, who operated the C.A.A. Station there, had offered to fly us over the swamps to the small frozen lake we had selected. Lake Minchumina lies 100 air miles from McKinley. The Indians there are still living in a hunting culture. To them this white mountain rising abruptly out of the colorful tundra has always been Denali "the great one," and Denali's wife stands beside him, the one less romantically renamed "Mt. Foraker" by early Americans.

We were fortunate that Lake Minchumina was still covered by hard, windblown ice. Dick made the first flight with Bucky Wilson and the emergency gear in his 125 h.p. ski-equipped Piper Pacer. They landed 45 minutes later on frozen "Lake Collins," elevation 2,400 feet. The snow was knee deep and the wind about 6 m.p.h. In two more trips we were all together, with the mountain towering over us. We carried with us 9 days' supplies plus 5 days' extra, which we intended to cache near the terminus of the Straightaway Glacier to cover our 75-mile hike out to Wonder Lake.

We set off across the deep snow-covered tundra on long, trail-type snowshoes. Skis could have been used as well, but they are heavier and too expensive to discard later on. After traveling five miles, we reached a snow-free bench along the northern edge of the glacier. There, we set up our first camp at 3,400 feet.

On May 3rd we set off for Crossen Corner, 10 miles distant, traveling alternately on the frozen trough between the bench and the lateral moraine and on the moraine itself. We placed our 5-day cache on the moraine, high up on an 8-foot boulder. We hoped the bears wouldn't find it, and here it would probably be safe from the teams of little "snaffle hounds" which abound in this mossy paradise.

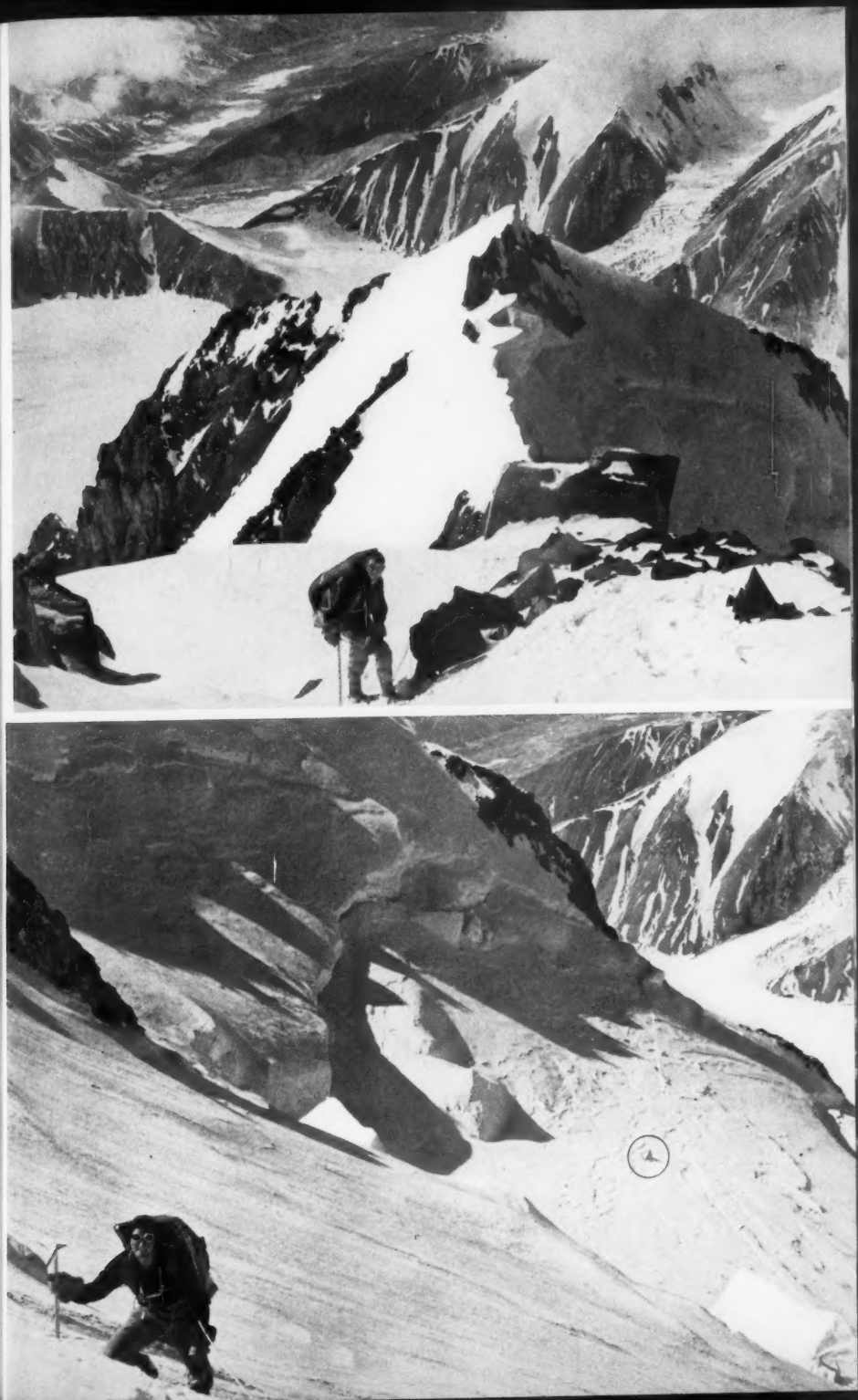
The following day, still wearing the lightest of clothing, we traveled up Crossen Glacier to Peter's Pass, 8,200 feet. Here we were shocked to find the sun shimmering on the glare ice of the

glacial basin, where we had anticipated deep snow to cushion our air drop! Only one mile ahead lay Cook's Shoulder, a gigantic white mass, studded with patches of pressure ice in innumerable pastel shades of green and blue. It was broken by fields of séracs and icefalls, by a headwall and great yawning crevasses, couloirs streaked with avalanche debris and topped off by a huge pyramid of rock.

We established Base Camp at the foot of the largest couloir, well out of reach of the avalanches. We pitched the tents on a small patch of flat *sastruggi* which had survived the winds. Surrounding us were the dirty, consolidated patches of last year's snow. Two days later in the early hours of the morning we heard two planes, one very high, which was apparently flying cover. The other buzzed camp and then flew up the glacier into the wind which had been gusty for the past hour or so although the skies were clear above. An hour later Jean and Dick Collins strolled into camp, upsetting everything including a pot of tea! They had not landed intentionally but were forced down by heavy down drafts less than a mile from camp, obscured from us by the undulations in the ice. The plane had overturned, but they were unharmed. They had been able to speak to Minchumina immediately after the crash, but a short while later the battery had gone dead. There was nothing for them to do but double up with us and wait out the storm which was building up. Warm winds eventually came well in excess of 100 m.p.h., sweeping the glacier cleaner than ever. The storm lasted three days, after which Wilson and I were able to escort the Collinses back down the glacier to their frozen lake. The next day they were rescued by a U.S.A.F. helicopter, HT-9, from the 74th Air Rescue Service, which had spotted the sign we had printed in the snow at

Top—VIEW FROM 14,000 FT.
showing the second pyramid which was circumvented (cathedral). Couloir to right which lies in shadow is partly obscured by the immediate rocky foreground, Peter's Pass and Straightaway Glacier in background. Wilson, foreground, carrying about 35 lbs.
Photo, D. McLean

Bottom—IN THE COULOIR AT 13,500 FT.
Tent visible below right center of photograph.
Photo, D. McLean



the terminus of the glacier. We had cut the tallest tree trunks and spelled "Lake" in six-foot letters with a large arrow beneath it.

Wilson and I returned to base camp where spirits were again high. Cloudless and windless weather had permitted two air drops, one by Ginny Wood, whose husband, Morton Wood, was climbing with Thayer on the south side of the mountain, and another by the SAI-6 albatross of the 74th Air Rescue Service, which because of the emergency parachuted the more fragile supplies to us. Henry, Bill, and Fred had cracked the real problem of a route to the top of Cook's Shoulder. It was a glassy staircase of precarious steps chopped 80% of the way, 2000 feet up. Beginning in a snow couloir on the left or northern slope of the shoulder, it then went to the right across a small triangular plateau about midway and eventually zig-zagged straight up the western crest of the shoulder. Two fixed ropes were established, both of which were taken up higher with us a few days later after we had finished the relays. The ice steps deteriorated badly in the sun, but we did not anticipate interval melting above 11,000 feet. Beyond the 10,500-foot cache lay a cockscomb, the cornice of which fell straight off on the north, directly over the little plateau at 9,000 feet. Sitting astraddle this knife ridge during delays was like riding a horse! Camp I was established beyond this tricky crest, at the "windless oasis," perhaps 300 feet below and to the left of the ridge at 10,500 feet for reason of protection from possible high winds. Beside the Logan and French tents Fred dug a snow cave which we fortunately were never obliged to use for anything except storage. We had carried well over 100 M.D.* of food to this point. This camp lay just below the highest point reached by the Cook party on August 30, 1903, at the foot of the first rock ridge. It was here that a member of that party wrote

*_Man Day:_ One man day is a unit of dehydrated food enough for one man for one day.

Top—CHAIN RAPPELLS ON DESCENT OF ABRUZZI RIDGE
Beckey in background. Meybohm in foreground.
Photo, D. McLean

Bottom—UP THE ABRUZZI RIDGE TO THE FIRST PYRAMID
Cock's Comb and Cook's Shoulder in right background.
Photo, D. McLean

'It's not that we couldn't have done it if there was a way; there just ain't no way.' There had been much more snow and almost no glare ice on the shoulder 50 years before.

On May 13th Fred and I selected the right side of the rock ridge leading up 1,000 feet to the right-hand side of a great rock pyramid. This ridge, which Bill referred to as the "Abruzzi Ridge," we found to be of reddish brown schist cracked in all directions but with a favorable dip for climbing. The slope began at about 20° but steepened as we reached the pyramid where there was actually an overhang in places. We climbed unroped because of the severe exposure and treacherous nature of this loose rock, sometimes frozen, sometimes not. By placing fixed ropes on a few of the rock towers leading to the pyramid, we were able to make it reasonably safe for travel with packs weighing about 40 pounds. On the following day we all reached the top of the pyramid, utilizing more fixed rope but not as much as we would have liked. Here at 12,500 feet we placed another cache and, on the following day, Wilson and I set up the French tent at this elevation. We reconnoitered above this, leaving camp in the late afternoon because earlier the scud had prohibited higher travel. It felt good to be once again not only on crampons, but roped as well. At 13,100 feet we were blocked by another escarpment of rock, Pyramid II. Not knowing what lay above or beyond this rock cliff, we traversed around it to the left, across a great sloping cirque. We could see above us the long serrated ridge which we had just skirted, while the steepest portion of the Wickersham Wall, looking very very bad, lay in profile to our left. A broad snow-filled couloir led from the cirque back up to the northwest ridge, well beyond Pyramid II and the cathedral spires that surmounted it. After six hours of continuous step chopping up this couloir, we reached the northwest ridge again at approximately 14,200 feet. The ice chips here would skip and slide down to the *Tuluna* Icefall, 6,000 feet below us. The rock on the ridge had changed to black schist, especially dark in con-

Top—BEGINNING ASCENT OF COULOIR AT 13,000 FT.
Photo, D. McLean

Bottom—NORTHEAST BUTTRESS FROM PETER'S PASS
Photo, D. McLean

trast to the overall whiteness of the snow. Here, well above the clouds which obscured everything below 13,000 feet, stood only Denali and Denali's wife, McKinley and Foraker, alone and serene. The clouds, like a greater Niagara, poured down from central Alaska eastward between these two peaks, reaching as far as the Kenai Peninsula, where they simply evaporated upon reaching the sea. From here it would be an easy go on crampons to the base of the last real obstacle, the rock pitches at 14,800 feet and an ideal site for Camp III.

The two roped groups met and set up Camp II together on the night of May 20th in the cirque at 13,000 feet. Temperature at midnight was —20° F., rising to +20° F. at noon. Next day the new reconnaissance party, Fred, Bill, and Henry, carried loads beyond the 14,200-foot cache. We could see them with their packs two domes above us on the ridge, trudging through new snow 16 inches deep. They had been able to reach 15,600 feet, had placed a series of ropes on the rock for the last 600 feet and had found a well sheltered campsite at 15,600 feet. This was the last real rock problem we had to deal with. In attaching the rope, Fred had hammered the first rock pitons ever used on McKinley into the great blocks of speckled orange granite which were heaped one upon another on the lower portions of the climb. The upper reaches were irregular cliffs, stepped every 30 or 40 feet.

On May 22nd we established Camp III beneath this rock at 14,800 feet. The following day we set out as usual about noon on two ropes and went leapfrogging up the lower rock as a solitary eagle circled overhead. We lunched at 6 P.M.; then with all tied into one long 220-foot rope, we tackled the steepest part of the mountain. Where it could hold, the new snow was six inches deep, even on this face where there were only narrow cracks and ledges an inch or so wide. With Fred leading, we reached Camp IV at 15,600 feet, three and a half hours later. Fortunately, this cliff had been draped with fixed rope during the reconnaissance

Top—THE ROCK AT 15,000 FT.
Photo, D. McLean

Bottom—CAMP AT 15,500 FT.
Photo, D. McLean

two days before, when there was a minimum of snow. Otherwise, with the new snow it might well have proved impassable. Unfortunately we had gone up with tents, food, and stoves but without the pots. Two of us went down to 15,300 feet and back in an hour and a quarter. What a difference it makes once the route is "in." We climbed into our sleeping bags at 2:00 P.M. when the temperature was — 8°. The following day Fred and I free hauled supplies up the cliff while the others explored the ridge which angled less steeply in a northerly direction from Camp IV. This was the last relay.

The first view of the south peak was from the summit of the 16,600-foot peak along this ridge. We all reached the new cache at 17,000 feet the next day, deciding to place Camp V there early in the evening because the weather had closed in. We purposely had carried only the Logan tent above Camp IV. To set up camp here at 17,400 feet on a moderate slope, we were obliged to cut a six-foot platform, the inner wall of which was four feet high. In a way, it was unfortunate that we had had such excellent weather because we had climbed so fast that we had not become acclimatized. Three of us suffered headache, nausea, and vomiting. I administered to each an intramuscular injection of Acth-Ar-Gel, a pituitary hormone which stimulates secretion of the adrenal cortex and is known to be of exceptional value in stress conditions.

On the morning of May 26th we rose at 7:00 A.M. and packed up the northern slope between an icefall and a rock cliff to the snowy top of the 18,000-foot peak. From here on it was a tedious trip for a quarter of a mile along a gently sloping corniced ridge until we reached the base of Peak 18. Passing this on the eastern slope, we gained another 500 feet in altitude which placed us on the Great Plateau of the North Peak, to our knowledge the highest camp ever established on the mountain. On the day following, Thursday, May 27th, two of us had recovered from altitude sickness. We were then ready to set out for the North Peak by 8:00 A.M., but the weather was deteriorating. We actually left at 4:30 that afternoon, ascending via the southwestern snow ridge of the peak. To our left the mountain fell off sharply 12,000 feet down the absolutely unclimbable northern facade. The actual

summit was reached individually by the two ropes between 7:30 and 8:00 P.M. Grant Pearson had asked us to travel down the northwestern ridge for approximately a quarter of a mile to look for evidence of the sourdough's pole or its guy-lines, which once stood on the last rock outcrop of the north ridge. But with foul weather brewing we gave up this highly desirable quest.

We waited four more days for better weather, but the wind continued to blow and the south peak was almost constantly shrouded in clouds. It had been extremely uncomfortable living for five men in a small, frost-coated tent for almost a week at so high an elevation. When the fuel ran out and we were forced to descend, we left without regret.

The actual descent took four days to Peter's Basin. We went down the rock pitches using long rappels with a double length of rope. We needed a series of 10 continuous rappels to descend the Abruzzi Ridge, which proved rather bad because of recent snow. The great cirque over which we had strolled in our ascent was now covered with six feet of new snow. Fortunately, we had a small aluminum shovel which could be attached to an ice-axe, so we were able to dig a path until we finally came to the ridge where the winds had blown much of the snow away.

By pushing hard, we were able to tramp out the 75 miles from Crossen Corner to Bar Cabin in three days, finding in the registry there a confusing entry signed by Wood and Les Viereck. Not until next morning at Wonder Lake did we learn that it signified the death of Elton Thayer and the rescue of George Argus. It was grim news to receive after our own thoroughly enjoyable trip.

Summary of Statistics

Ascent: Northwest Ridge, Mt. McKinley, Alaska; first ascent, May 27, 1954.

Personnel: Fred Beckey, Capt. William D. Hackett, Donald McLean, Henry Meybohm, and Charles R. Wilson.

Record of the First Approach to Mt. McKinley

JOHN C. REED, JR.
U.S. Geological Survey,[1] *Washington 25, D. C.*

In 1902 Dr. Alfred H. Brooks, of the U.S. Geological Survey, made a journey that has since come to be considered one of the classics of Alaskan exploration. His party of 7 men and 20 horses left tidewater at the head of Cook Inlet on June 2, 1902. They crossed the Alaska Range through a pass at the head of the Yentna River, which Brooks named Rainy Pass, turned northeastward and skirted the base of the range as far as the Nenana River, then called the Cantwell, descended the Nenana to the Tanana River, and reached the Yukon at the village of Rampart on September 15th.

On this journey of 800 miles over rugged and unexplored terrain, the party carried out topographic and geologic surveys, portions of which are only now being refined and improved.

During the course of their exploration, the Brooks party made the first close approach to the base of Mt. McKinley, and D. L. Reaburn, topographer of the party, made the first reliable measurement of the height of the peak. His figure of 20,300 feet for the altitude of the south peak of McKinley has been accepted for 52 years.

On August 3rd, the Brooks party made their closest camp to the base of McKinley, near the head of what is now called Slippery Creek, about 13 miles northwest of the summit of the mountain. In one of his accounts of his journey, Dr. Brooks writes:[2]

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[1] Publication authorized by the Director, U.S. Geological Survey.

[2] Brooks, A. H., "An Exploration to Mt. McKinley, America's Highest Mountain": Jour. Geography, v. 2, no. 9, p. 441-469, Nov. 1903.

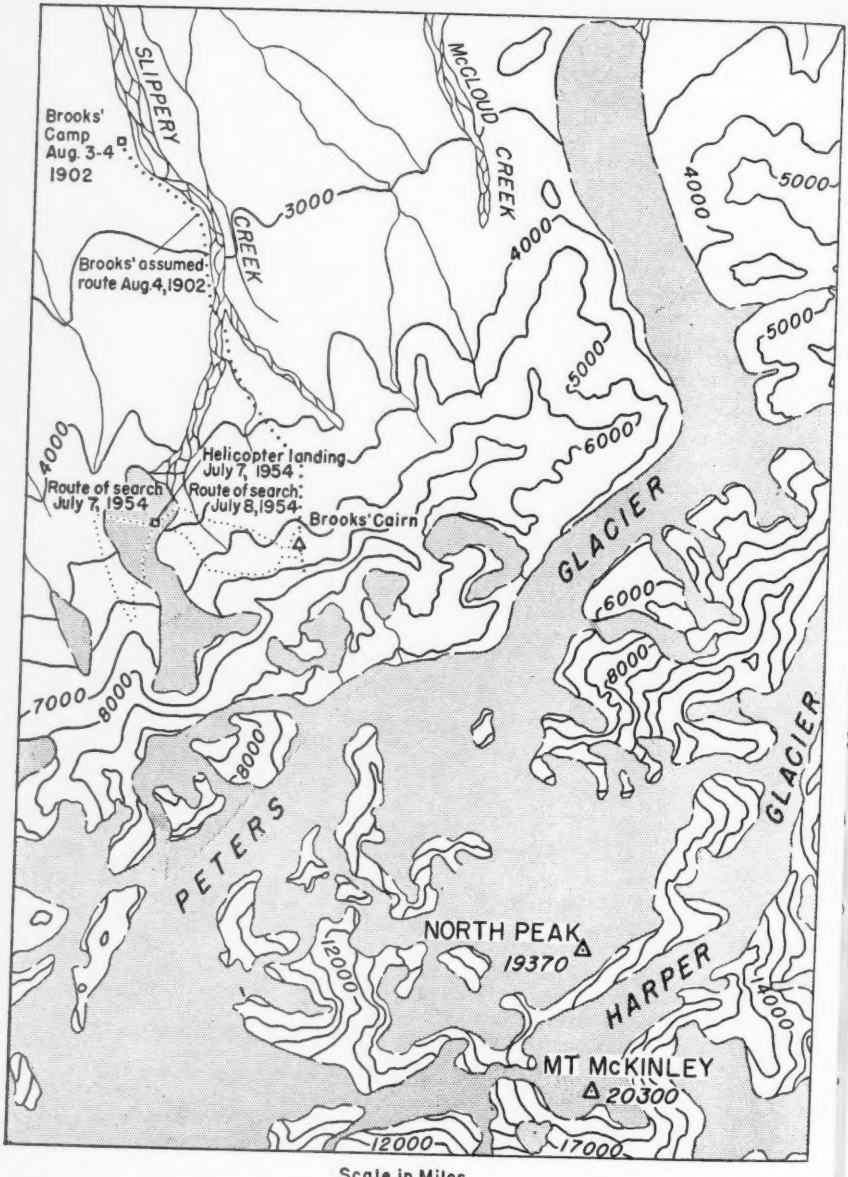
Two days later we made our nearest camp to Mt. McKinley, in a broad, shallow valley incised in the piedmont plateau and drained by a stream which found its source in the ice-clad slopes of the high mountain. We had reached the base of the peak, and a part of our mission was accomplished, with a margin of six weeks left for its completion. This bade us make haste, for we must still traverse some four hundred miles of unexplored region before we could hope to reach even the outposts of civilization. Notwithstanding all of this, we decided to allow ourselves one day's delay so that we might actually set foot on the slopes of the mountain. The ascent of Mt. McKinley had never been part of our plan, for our mission was exploration and surveying, not mountaineering; but it now seemed very hard to us that we had neither time nor equipment to attempt the mastery of this highest peak of the continent.

The next morning dawned clear and bright. Climbing the bluff above our camp, I overlooked the upper part of the valley, spread before me like a broad amphitheatre, its sides formed by the slopes of the mountain and its spurs. Here and there glistened in the sun the white surfaces of glaciers which found their way down from the peaks above. The great mountain rose 17,000 feet above our camp, apparently almost sheer from the flat valley floor. Its dome-shaped summit and upper slopes were white with snow, relieved here and there by black areas which marked cliffs too steep for the snow to lie upon.

A two hours' walk across the valley, through several deep glacial streams, brought me to the very base of the mountain. As I approached, the top was soon lost to view; the slopes were steep and I had to scramble as best I could. Soon all vegetation was left behind me, and my way zigzagged across smooth, bare rocks and talus slopes of broken fragments. My objective point was a shoulder of the mountain about 10,000 feet high, but at three in the afternoon I found my route blocked by a smooth expanse of ice. With the aid

of my geologic pick I managed to cut steps in the slippery surface, and thus climbed a hundred feet higher; then the angle of slope became steeper, and as the ridge on which the glacier lay fell off at the sides in sheer cliffs, a slip would have been fatal. Convinced at length that it would be utterly foolhardy, alone as I was, to attempt to reach the shoulder for which I was headed at 7,500 feet I turned and cautiously retraced my steps, finding the descent to bare ground more perilous than the ascent.

I had now consumed all the time that could be spared to explore this mountain which had been reached at the expense of so much preparation and hard toil; but at least I must leave a record to mark our highest point. On a prominent cliff near the base of the glacier, which had turned me back,


SLIPPERY
CREEK
McCLOUD CREEK
Brooks' Camp Aug. 3-4 1902
Brooks' assumed route Aug. 4, 1902
Helicopter landing July 7, 1954
Route of search July 7, 1954
Route of search July 8, 1954
Brooks' Cairn
GLACIER
PETERS
GLACIER
HARPER
NORTH PEAK
19370
MT McKINLEY
20300
3000
4000
5000
6000
7000
8000
12000
17000
Scale in Miles
5
0
5

I built a cairn in which I buried a cartridge-shell from my pistol, containing a brief account of the journey together with a roster of the party.

By this time I was forcibly reminded of the fact that I had forgotten to eat my lunch. As I sat resting from my labors, I surveyed a striking scene. Around me were bare rock, ice and snow; not a sign of life,—the silence broken now and then by the roar of an avalanche loosened by the midday sun, tumbling like a waterfall over some cliff to find a resting-place thousands of feet below. I gazed along the precipitous slopes of the mountain and tried to realize again its great altitude, with a thrill of satisfaction at being the first man to approach the summit, which was only nine miles from where I smoked my pipe. No white man had ever before reached the base, and I was far beyond, where the moccasined foot of the roving Indian had never trod. The Alaskan native seldom goes beyond the limit of smooth walking and has a superstitious horror of even approaching glacial ice.

During the summer of 1954, the author was in the Mt. McKinley area conducting geologic studies and checking geologic interpretations that had been made from aerial photographs in the office the previous winter. Grant H. Pearson, the superintendent of Mt. McKinley National Park had just finished writing a history of the Park and had come across the above quotation. He was extremely interested in attempting to locate Dr. Brooks' cairn and recover the record that had been left. As I had planned to visit the Slippery Creek area by helicopter, we decided to join forces and combine a quick geologic reconnaissance with a search for the cairn. We realized that locating a single cartridge shell on the slopes of Mt. McKinley was the old problem of the needle in the haystack raised to the nth degree. However, we had several clues to go on. The location of Dr. Brooks' camp on August 4th is shown on the map which accompanies his official report.[3] Several photographs bearing this date appear in his various papers; presumably they were taken somewhere along his route, probably at the point where the cairn was built. His description of the route he followed, although not very complete, further served to narrow the field. Last, and most important, we assumed that the route he would have chosen would correspond closely with the route that anyone experienced in the mountains would have selected under similar circumstances. After careful stereoscopic study of the aerial photographs we selected two places near the head of Slippery Creek which seemed the most likely areas to

[3] Brooks, A. H., "The Mount McKinley Region, Alaska": U.S. Geol. Survey Prof. Paper 70, 1911.

search. The first of these was at the foot of a steep, glacier-covered ridge just west of the glacier which lies at the head of the westernmost fork of Slippery Creek—for lack of any other name we referred to this as the "Slippery Glacier." The second was on a prominent bare ridge about 3 miles east of the "Slippery Glacier."

On July 7th, we were landed at an altitude of about 5,400 feet on the "Slippery Glacier" by a Geological Survey helicopter which was operating from Wonder Lake. Setting up our camp near the middle of the glacier, we immediately set out to search the ridge to the west. At the time, we considered this the most likely location as it seemed to offer the most direct route to the only 10,000-foot shoulder of mountain shown on Brooks' map, and the route was indeed blocked by a smooth expanse of ice that would have been an insuperable obstacle without the aid of ice-axe and crampons. After searching unsuccessfully for several hours we returned to camp in time for our evening radio schedule with the Survey camp at Wonder Lake.

The next day, July 8th, we turned our attention to the eastern ridge. Traversing the slopes east of the glacier at about the 7,000-foot level, we spent several hours searching minor ridges and spurs and at about 2:00 p.m. reached the second area we had picked on the photos. Although this second ridge was not ice covered, it had obviously been overridden in the very recent past by ice of a small glacier lying just to the east. After a search of about half an hour, we located the cairn at the north end of a prominent erratic boulder which lies at an elevation of about 6,500 feet on the skyline of the ridge as seen from the west. The boulder is a rectangular block of granite about 15 feet long and 5 feet wide. The cairn consisted of four or five rocks piled over a small hollow in the large boulder which contained a 30-30 cartridge,[4] sealed with clay, and wrapped in a cloth tobacco sack (Maryland Club Mixture). Since the cairn had been erected by Brooks in 1902, at least an inch of moss had grown between the rocks. No attempt was made to remove the note, for the paper was badly water soaked.

[4] In his account, written some time later, Brooks mentioned a pistol cartridge, evidently a minor mistake.

After replacing the Brooks note with one of our own, which we placed in a waterproof film can, we rebuilt the cairn and returned to camp to report our success over the radio to Wonder Lake.

The cartridge was sent by the National Park Service to the National Archives in Washington, where experts removed the note. It proved to be a standard Geological Survey specimen label with Dr. Brooks' name written in pencil on the back. The cartridge, note, tobacco bag, and a specimen of the moss have been returned to McKinley Park where they will remain in the park museum as a memento of the first man to approach the slopes of Mt. McKinley.

University Peak, 1954

GIBSON REYNOLDS

The privileged first climbers to visit a major alpine region share an experience that is becoming rare in North America. One such relatively untouched region is surprisingly close to the well-traveled Chitina Valley of Alaska, whose natural gravel highways lead into the heart of the St. Elias Range. The country north of the upper reaches of this valley and south of expansive Mt. Bona has been seen occasionally from planes, and glimpses have been recorded by the Bona Expeditions and Boundary Survey parties. Furthermore, the irrepressible search for mineral wealth has led prospectors at least half way up the valley of the Hawkins Glacier. This glacier and tributaries of the Barnard Glacier are the principal drainage of the area and offer convenient avenues of approach. Except for a few steep icefalls, the southern face of the Bona Massif is a mighty escarpment buttressed by outlying ridges that are in themselves worthy mountains. The divide between the Hawkins and Barnard systems reaches its apex at University Peak before merging with Mt. Bona. Although roughly indicated on maps of the International Boundary Commission, it remained unnamed until Dr. Terris Moore of the University of Alaska, one of the original climbers of Mt. Bona, christened it University Peak in 1950 or 1951. From his aerial measurements the altitude was placed at slightly more than 15,000 feet.

During the winter and spring of 1953-54, Paul Gerstmann of Seattle organized a group to attempt its ascent. Except for Bob Cromer from Illinois and myself from New York, all were Wash-

ingtonians. These northwestern enthusiasts were Sheldon Brooks, Elwyn Elerding, Worth Hedrick, and Larry Wold. The expedition was transported by truck the latter part of June from Seattle to Chitina, Alaska, and thence by plane to a temporary base at May Creek near McCarthy. I joined them here on July 2nd via Cordova Airlines, which had contracted to do our flying.

After the usual delays, a cursory reconnaissance flight was made and, on July 8th, our chief pilot, Herb Haley, deposited five of us on the gravel flats of the Chitina River near the terminal moraines of the Hawkins Glacier. While we undertook the sixteen-mile glacier hike, food and supplies were dropped at the head of the Hawkins to await our arrival. As late as this in the year the glacier was nearly bare of snow and our few improvised parachutes were inadequate for the job. The majority of the expedition's provisions had to be free dropped into the deep snow of a small hanging valley some 1600 feet above the site of our base camp and unfortunately not on any possible route up University Peak.

The rock walls of this cirque rise more than 5000 feet to the long arête joining Mt. Bona with its two western-most satellites, called "Twa Harpies" by the 1951 Bona Expedition. The avalanches down this wall were nearly continuous and each became quite familiar to us in time. There was grand "Niagara" with its divided cataract, spouting "Old Faithful," slim and graceful "Yosemite" in two dramatic plunges, and many others. As the valley was always celebrating, we referred to it as the "Fourth of July Cirque." The sound effects varied from the hiss of powder snow and the snapping pistol shots of falling rocks to the rumble of mixed debris and the deafening roar and blast of the shock wave produced by a fall of a substantial portion of the ice-cap overhanging the head of the valley.

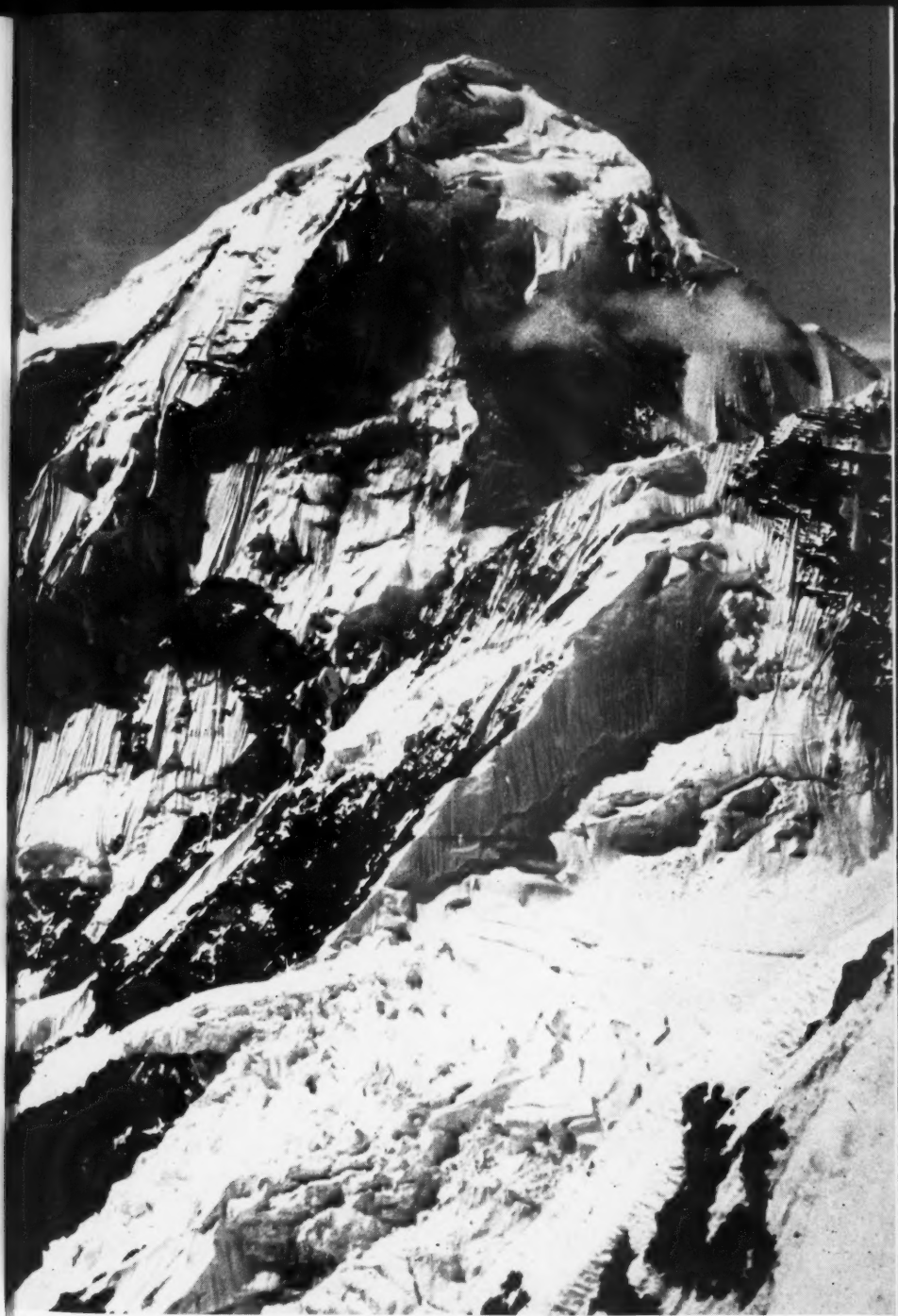
The entire expedition worked in shifts to find a means of entering the valley. Finally, both the icefall at its mouth and the rocks to the south were scaled and supplies were brought down both routes. Neither was attractive with heavy loads. Soft snow and falling ice or rocks required that most of the portaging be done at night. The rock route was preferable, especially after it was made easier by a thousand-foot fixed rope. On one of these

round trips, Hedrick and I were injured by loose rocks. Thanks to the excellent ministrations of Doctors Cromer and Gerstmann, we were soon climbing again, though at reduced efficiency.

After the major effort to retrieve our provisions, the enthusiasm of some members had waned. Our best chance of success on University Peak lay in the establishment of a comfortable, well-stocked camp in the high cirque between it and Mt. Bona. To do this, we would have to ascend the glacier leading from the head of the Hawkins to this upper cirque. There were no alternatives for us on this side of the Barnard–Hawkins divide. The cliffs to the west were nearly vertical for many thousand feet and the few couloirs were regularly spewing avalanches. The ice-hung, avalanche-swept face of University Peak was out of the question. The steep faces and rock arêtes of its south face were too long (9000 feet), and perhaps unclimbable. Our glacier route beneath the west face consisted of two sections of icefall joined by a short stretch of hilly ice. The lower 1500-foot section did not appear as difficult as the icefall we had just finished battling. The middle portion would probably be satisfactory as a camp site but for its exposure to the shock waves accompanying the fall of ice from University Peak. The upper 3000-foot icefall was a fascinating enigma.

Wold and Hedrick succeeded in establishing a labyrinthine trail through and over the crevasses of the lower icefall. Then Gerstmann, Hedrick, Wold, Elerding, and Brooks carried up food and established a cache. On July 18th, Hedrick, Wold, Elerding, and Brooks left base camp in the early evening and in a few hours of darkness ascended the lower icefall and proceeded up the western side of the upper icefall, following the beaten path of a huge fallen sérac. The night was warm. Near the crest toppling séracs became quite unnerving. The party was at last stopped at 10,300 feet by a large uncrossable crevasse and the imminent return of daylight which necessitated a race with the sun back down the glacier.

Two days later we all moved up the lower icefall and camped on the middle section to await a cold night. The weather had been warm and wet for the past week and an especially convenient snow bridge on the lower icefall had at last collapsed.



EAST FACE OF UNIVERSITY PEAK FROM KLUTLAN COL

North ridge was projected route of ascent.

Photo, A. Baxter

It was necessary to descend into the crevasse, traverse along its bottom, and ascend the upper wall at a weak spot in its defenses. Previously cached food on the middle glacier could not be found, having been either buried or carried away by an avalanche.

After we had spent a day camp-bound in fog and wet snow, two particularly strong shock waves struck us, one in the early evening and another at dawn. They prompted a decision by four of the group to return to base camp. Wold, Hedrick, and I spent another day in the fog waiting. In the afternoon colder weather and partial clearing improved our spirits and that night the upper icefall was assaulted a second time. The previous route was followed for the first thousand feet. Then, led astray by fog and darkness, we traversed to the eastern margin too soon and after hacking our way up to 9500 feet, we were halted by a bewildering forest of séracs and chasms and the theatening approach of the sun.

On this second attempt, below-freezing temperatures had been a great blessing. Failure stemmed directly from the still handicapping injuries of two of the party and the necessity of getting off the icefall before the sun struck it. No further attempts were made. Back at base camp the majority wished to leave. After a few days of relaxation, we trekked back down the Hawkins, some of us experiencing acute frustration and vowing a return trip earlier in the season when glacier travel is easier and one can put in a good day's work in daylight.

Summary of Statistics

Attempted: University Peak, ca. 15,000 ft., St. Elias Range, Alaska.

Height Reached: ca. 10,300 ft.

Personnel: Leader, Paul Gerstmann; Sheldon Brooks, Robert Cromer, Elwyn Elerding, Worth Hedrick, Gibson Reynolds, and Lawrence Wold.

SERRA 4
The summit tower taken from Serra 3-4 ridge.
Photo, D. Sowles

Stanford Coast Range Expedition, 1954

NICHOLAS B. CLINCH

At noon, June 25th, Bill Fisk, chief pilot for Kenmore Air Harbor, Inc., landed his red Norseman float plane so gently on the waters of Dumbell (Ghost) lake that his seven passengers never knew exactly when he had touched down. Six months of preparation had come to an end. Back in January six members of the Stanford Alpine Club, Bob Brooke, Nick Clinch, Gary Driggs, Jack Maling, Gil Roberts, Dave Sowles, and Andy Kauffman of Washington, D. C., began to organize a trip into the Coast Range of British Columbia. Utilizing the experience of the Sierra Club party in 1950 and the Hendrick's party in 1953, we spent the next few months working out the various problems of transportation, food, community equipment, and medical supplies. We would have to be able to spend over a month camped on the Upper Tellot glacier.

To have the maximum number of climbing days, we decided to fly in and fly out from Dumbell lake. The supplies were to be air-dropped. Because of the notorious reputation of the Coast Range for bad weather, we decided to drop a large supply of extra food, equipment, and gasoline so that we could cope with any emergency. The unpleasant prospect of spending five weeks in a tent, becoming intimately familiar with the bad habits of one's companions, was fully possible. As it turned out, our pessimism was well-founded. For 21 days we were confined to our tents. For 8 additional days we could not climb. Yet we were in the region for only 39 days. We used over 13 of the 15 gallons which we had had dropped. Most of it was used to melt snow. There was no running water at our camp site.

Despite the welcoming committee of mosquitoes, we were glad when the Norseman bumped into a log on the west shore of Dumbell lake and we eagerly unloaded our packs. Afterwards, we intently watched the Norseman depart, then turned and packed up through easy snow-covered bush, over gravel flats, along the base of the moraine to the snout of the Tellot Glacier where we pitched camp. The next day we began the long pull up the glacier. Soft snow and fog prevented us from reaching the site of Hendrick's high camp until noon of the third day. We located his cache and continued on for several hundred feet to the highest of several rock outcroppings, where we established base camp at about 9,800 feet.

The sky of June 28th was clear, but there was a solid overcast beneath us at 8,500 feet. We stamped out a drop area near the base of Dragonback. Most of the party, thinking that the air drop would not come, wandered up the peak. However, the Norseman climbed out of the Homathko River valley through the overcast, dropped our supplies, and promptly dove back under the cloud cover. We spent several exhausting hours gathering in the cartons and dragging them down to camp. All but one of the cartons was eventually recovered. We set up our Logan tent inside a snow-wall windbreak, took inventory, stacked the food cartons, and prepared for a long stay on the Upper Tellot.

The next day the weather turned bad, with the wind blowing snow. Kauffman, Maling, and some of the others built a snow house big enough to hold all seven of us. It served as the kitchen, dining room, and recreation hall for the remainder of the trip. The weather grew worse. The wind rose to gale proportions. To keep the two-man tents from ripping apart, we moved them from the exposed rock platforms we had built, on to snow and protected them on all sides by high snow walls.

On July 2nd the skies cleared sufficiently for climbing. Brooke, Driggs, and Sowles made a first ascent of a fine rock pinnacle between Mt. Tellot and the Dragonback massif, which they named Tellot Spire. They then climbed the west peak of Mt. McCormick by a new route on the west face. Roberts and Maling climbed Dentiform, while Kauffman and Clinch climbed Serra 3 from the Serra 2-3 col. The main difficulty on the ridge leading

up Serra 3 was a gendarme that had to be circumvented. It was turned by making a rappel down the Tiedemann side of the ridge and climbing up an icy chimney to the ridge, past the gendarme. The rappel was left in place to facilitate the return. On the way back to camp, Kauffman and Clinch climbed Mt. Tellot, beginning a tradition that all parties returning from the Serra 2-3 col should climb Mt. Tellot on the way home. The large quantity of snow and ice on the rock, combined with the freezing wind, made all the climbs more difficult than had been anticipated. We frequently used pitons for safety.

July 3rd was stormy, but the weather cleared up again on July 4th and the entire party tramped up Mt. Shand. Sowles, Brooke, and Maling then climbed Mt. Heartstone. Kauffman, Clinch, Driggs, and Roberts did both peaks of Mt. Argiewicz. On the west peak of Mt. Argiewicz, Kauffman, with a shaft belay around his mended ice-axe, held Clinch's 25-foot slide down a steep snow couloir. Andy had broken his axe chopping steps in the ice while going up to the Serra 2-3 col. Maling had put it back together with wood screws, wire, and tape.

The weather closed in again for over a week. During a brief lull in the storm a reconnaissance party, consisting of Driggs, Maling, Roberts, and Kauffman, went out to find a route through the two icefalls by Mt. McCormick to the Radiant glacier. They returned to camp on a compass course, struggling into the driving snow.

Finally the elements relented. After a day of drying out and preparing camp for the next storm, we turned our attention again to the Serra and Claw ridges. Driggs and Sowles made an excellent traverse of Upper Claw Peak, Harvard Claw, and California Claw. They climbed Claw Peak by a new route on the northeast face, probably the most difficult rock climb of the trip. Meanwhile, the rest of the party climbed Serra 1. Snow and ice on the slabs of the regular ridge route made part of it infeasible. Roberts made a fine lead up a chimney on the south face, using one piton for direct aid. That night when Driggs and Sowles returned from their traverse, we celebrated Driggs' 20th birthday with a birthday cake made of chocolate-covered Logan bread, complete with the proper number of candles.

The next day, July 14th, we divided into two groups and packed down to the Radiant Glacier to attempt Mt. Tiedemann. One group, Kauffman, Brooke, Driggs, and Clinch, avoided the lower icefall on the route to the Radiant by cutting up over the shoulder of Mt. S and wading down soft snow slopes. From the shoulder they got an excellent view of the proposed route up Mt. Tiedemann, which passed up the Radiant Glacier icefall to the saddle between Damoclese Peak and Mt. Tiedemann and then up the ridge to the summit. The second group, Sowles, Maling, and Roberts, descended through the lower icefall and reached the Radiant Glacier first. It was the superior route and was used by the entire party on the return trip to the Tellot Glacier.

The Radiant camp was most enjoyable except for the lack of water. It was warm and, for the first time in several weeks, our boots didn't freeze solid during the night. We left camp at 4:30 A.M. and began the long 5,000-foot grind to the top of Mt. Tiedemann. The snow was in such bad condition that we sank in up to our knees even before the sun came up. We therefore changed the lead every half hour as we climbed up for about 2,000 feet over fairly well bridged crevasses. After crossing under several tottering séracs, we gained the upper section of the icefall. The way appeared clear. However, large crevasses, which ran from one side of the icefall to the other, threatened constantly to stop us. One crevasse was 50 feet across. A lone ice bridge spanned it, but the far wall was overhanging. Sowles, with the help of two ice-axes and a shoulder stand from Roberts, led up over this obstacle, which was the crux of the climb. Later in the season, or in a drier season, the climb might be impossible, as such crucial snow bridges might be gone.

We slogged on up into the upper basin of the icefall and then up steep snow and rock to gain the saddle between Damoclese Peak and Mt. Tiedemann. After a delicate traverse over 300 feet of snow-covered rock, we gained the long and very beautiful snow arête leading to the summit. At 5:00 P.M. we were on top. It was the second ascent by a new route of the third highest peak in provincial Canada. The first ascent was made by Hans Fuhrer, Henry Hall, Jr., Sterling Hendricks, and Rex Gibson in 1939 by

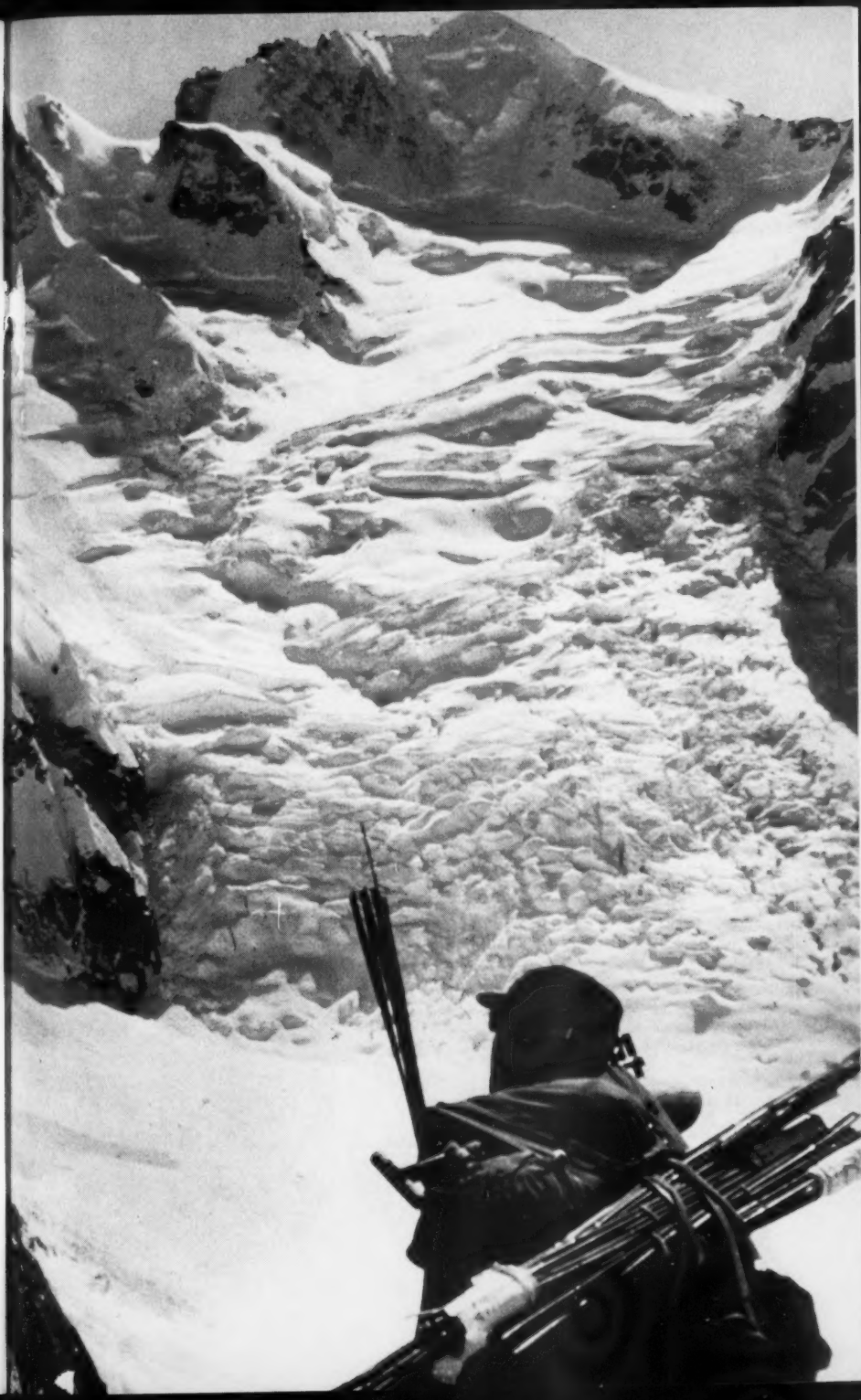
the Chaos Glacier. We gazed at the spectacularly rugged country around us, dominated by the bulk of Mt. Waddington, and then began the long descent to camp.

Under a threatening sky we broke the Radiant Glacier camp and packed back up to the Tellot Glacier. On the way back we discovered that a large sérac in the upper icefall had collapsed, wiping out 75 feet of our old tracks. When we finally reached the snow house and the battered Logan tent of the Tellot camp, we felt that we had returned home.

Once again the clouds descended and we were pinned to our camp for a week. Our activities were confined to digging out the tents and repairing the snow walls. Anxiety mounted as the storm raged on unabated. It appeared as if we wouldn't get a chance to attempt our main objectives, Mt. Waddington and Serra 4. At last the weather cleared up on July 23rd. Although it was originally planned that the entire expedition should attempt one objective and then try for the other, lack of time prevented this. It was decided that we should split up. A group of four would pack down to the Tiedemann Glacier to try Mt. Waddington. The three remaining climbers would try Serra 4. If we were lucky, we might gain one of our objectives and, if we were extremely lucky, we might even gain both.

Roberts, Maling, Driggs, and Brooke immediately packed up and left for the Tiedemann. Clinch, Kauffman, and Sowles remained behind. The recent storm had plastered the mountains with more snow. Although it was taking a chance with the treacherous weather, we decided to postpone the attempt on Serra 4 for a few days to give the snow a chance to consolidate and melt off. While we waited, Kauffman and Sowles made the first ascent of Famine Spire, one of a group of pinnacles near Mt. Shand which we named the Four Horsemen. The next day Sowles, Kauffman, and Clinch went down the Tellot Glacier and climbed Porthos and Aremis, two of the Four Guardsmen peaks. A long snow gully was followed which led up to the

MT. TIEDEMANN FROM MT. S
Shows route followed up the Radiant Glacier icefall. Gary Driggs in foreground.
Photo, N. Clinch



ridge between the two peaks. Several easy rock pitches led to the summit of Porthos, the highest of the four peaks. Aremis was pleasant scrambling. Since there was no cairn on the top, it might have been a first ascent.

The next day, July 25th, Kauffman and Sowles started off at 2:00 A.M. for Serra 4, 12,200 feet high, the highest unclimbed peak in provincial Canada. By sunrise they had reached the Serra 2-3 col. Although the snow was deeper on the Serra Ridge than at the beginning of the trip, they rapidly passed over Serra 3's obstacles and reached its summit by 7 o'clock. Pausing only for a moment to glance at an avalanche crashing down Mt. Munday, they descended from the summit and began the long traverse to Serra 4. Balancing along a narrow snow ridge, they reached the top of the first gendarme. Instead of continuing along the top of the jagged ridge, they dropped down onto the west face of the ridge and began traversing in a northerly direction along a ledge system. After numerous pitches of snow and snow-covered rock, they reached the end of the system. A large gendarme blocked the way to the summit ridge, but an icy gully dropped parallel to the ridge, on the Tiedemann slope, to a point beyond the gendarme. Using a fixed line, they rapidly descended the gully, which curved down away to the Tiedemann glacier as they left it and circled the base of the gendarme to just below the ridge. Rotten snow and high-angle rock led back to the main ridge. Some snow-covered rock and more sharp snow arêtes brought them to the base of the summit tower. After seven rock pitches of moderate difficulty Sowles and Kauffman reached the summit of Serra 4 at 4:00 P.M. The expedition had achieved one of its major objectives. The weather had been deteriorating during the entire day and was now getting worse. Rapidly and efficiently they returned along the ridge back to the summit of Serra 3. They continued on to Serra 2-3 col as it began to snow. The descent off the col was an extremely careful one, but below it they hurried, glissading and trotting toward camp, arriving at 9:00 P.M.

STILLETO – SERRA RIDGE
from Mt. Munday. Bob Brooke in foreground.
Photo, G. Roberts

Snow fell all the next day. On July 27th it cleared up again and Kauffman and Clinch climbed Mt. McCormick by the regular route. On the 28th Sowles and Clinch traversed some of the peaks of the Upper Tellot basin, including Mt. Tellot and Tellot Tower.

Early on the morning of the 29th, the Mt. Waddington party returned, having left the Tiedemann glacier at 3 A.M. to make the 4,000-foot climb back up to the Tellot. They reported Mt. Waddington covered with snow and ice. The snow conditions going up the Bravo – Spearman col were so bad that within 15 minutes after the sun had come up they had to crawl on their hands and knees with their 60-pound packs in order to make any progress at all. With bad weather apparently closing in, they retreated to the Tiedemann Glacier.

After sitting out one day of rain, they decided to try Mt. Munday, leaving at five in the afternoon to make a night ascent. By nine that night they had finished the rock climbing and waited for an hour for the snow to consolidate. Then came the tedious process of kicking steps. The cold encouraged them to maintain a brisk pace. By 3:30 A.M. they had reached the end of the ridge. Here they put on their down jackets and bivouacked for two hours, waiting for light. With the first faint glow on the horizon they donned their frozen boots and reached the summit in an hour. A very rapid descent brought them back to their Tiedemann camp where they slept for a day before starting back for the Tellot camp.

It was now time to leave the Upper Tellot. We put extra supplies, including food, several gallons of gasoline, and a traction splint, in a large well-marked cache. While Kauffman and Sowles packed up everything and arranged the loads for the trip down to Dumbell lake, Brooke and Roberts climbed Serra 3, and Driggs, Maling, and Clinch climbed Serra 2. At one point snow conditions forced the Serra 2 party out on the Tiedemann face, but after several high-angle rock pitches, the regular ridge route was regained. It was a perfect day to end the expedition's climbing.

On the 31st everyone, except Brooke and Roberts who wanted to enjoy their surroundings in good weather, left for Dumbell

lake. On the way down Driggs and Clinch detoured over to Nabob pass, a very scenic spot and worth the side trip.

Finally we arrived at the gravel flats and received a rude shock. In just one month a tremendous undergrowth had sprung up. What had been a walk in was now a terrible bushwhack out. We spent a miserable day in the slide alder, bog, and devil's club, chased by hordes of mosquitoes. The thought that an airplane would fly us out over this country if we reached Dumbell lake sustained us.

In groups of twos and threes we arrived at Dumbell lake and waded the short distance from shore to Serendipitous Isle, named by the Hendrick's party the year before. It seemed like heaven to us after spending over a month camped on snow. We were scheduled to be picked up on August 3rd. However, by six o'clock that day, the planes hadn't arrived so we had given up hope. After finishing a very meager dinner, we had gone to bed, when suddenly Kauffman yelled, "I hear planes." It was not an unusual yell, as probably 50,000 planes had been heard and announced that day, but this time it was true. The planes landed and, after greeting the pilots, we threw most of the gear on board, although some of it accidentally ended up in the lake. Taking off, we raced the fading light to the head of Butte Inlet where we landed and spent the night. The next day we were back in Seattle.

As we flew out and watched the mountains disappear in the distance and the dense Homathko River valley fly by beneath us, we thought with admiration of the hardy souls who had pioneered the region by backpacking heavy loads through the terrible bush. But their efforts and struggles were worthwhile. They had opened up one of the most beautiful and rugged mountain areas in North America.

Summary of Statistics

ASCENTS: Mt. Tiedemann, 12,800 ft., July 15th, second ascent—new route; Mt. Munday, 11,500 ft., July 28th; Serra 1, 11,900 ft., July 13th; Serra 2, 12,000 ft., July 30th, second ascent; Serra 3, 12,140 ft., July 2nd, July 25th, July 30th, second, third, and fourth ascents; Serra 4, 12,200 ft., July

25th, first ascent; Dentiform, 10,500 ft., July 2nd; Claw Peak, Harvard Claw and California Claw, 9,500 ft., July 13th; Mt. Tellot, 11,500 ft., July 2nd, July 28th, July 30th; Tellot Tower, 11,300 ft., July 28th; Tellot Spire, 11,000 ft., July 2nd, first ascent; Mt. McCormick, 10,800 ft., July 2nd (new route), July 27th; Mt. Shand, 11,000 ft., July 4th; Mt. Argiewicz, 11,000 Ft., July 4th; Mt. Heartstone, 10,000 ft., July 4th; Unnamed pinnacle, 9,800 ft., July 12th, July 29th, first and second ascents; Famine Spire, 9,400 ft., July 23rd, first ascent; Porthos, 10,500 ft., July 24th, second ascent; Aremis, 10,500 ft., July 24th, first ascent; Dragonback, 11,000 ft., June 28th, July 28th.

PERSONNEL: Robert C. Brooke, Nick Clinch, Gary Driggs, Andrew Kauffman, Jack Maling, Gil Roberts, David Sowles.

Mt. Ida and Other Climbs

FREDERICK L. DUNN

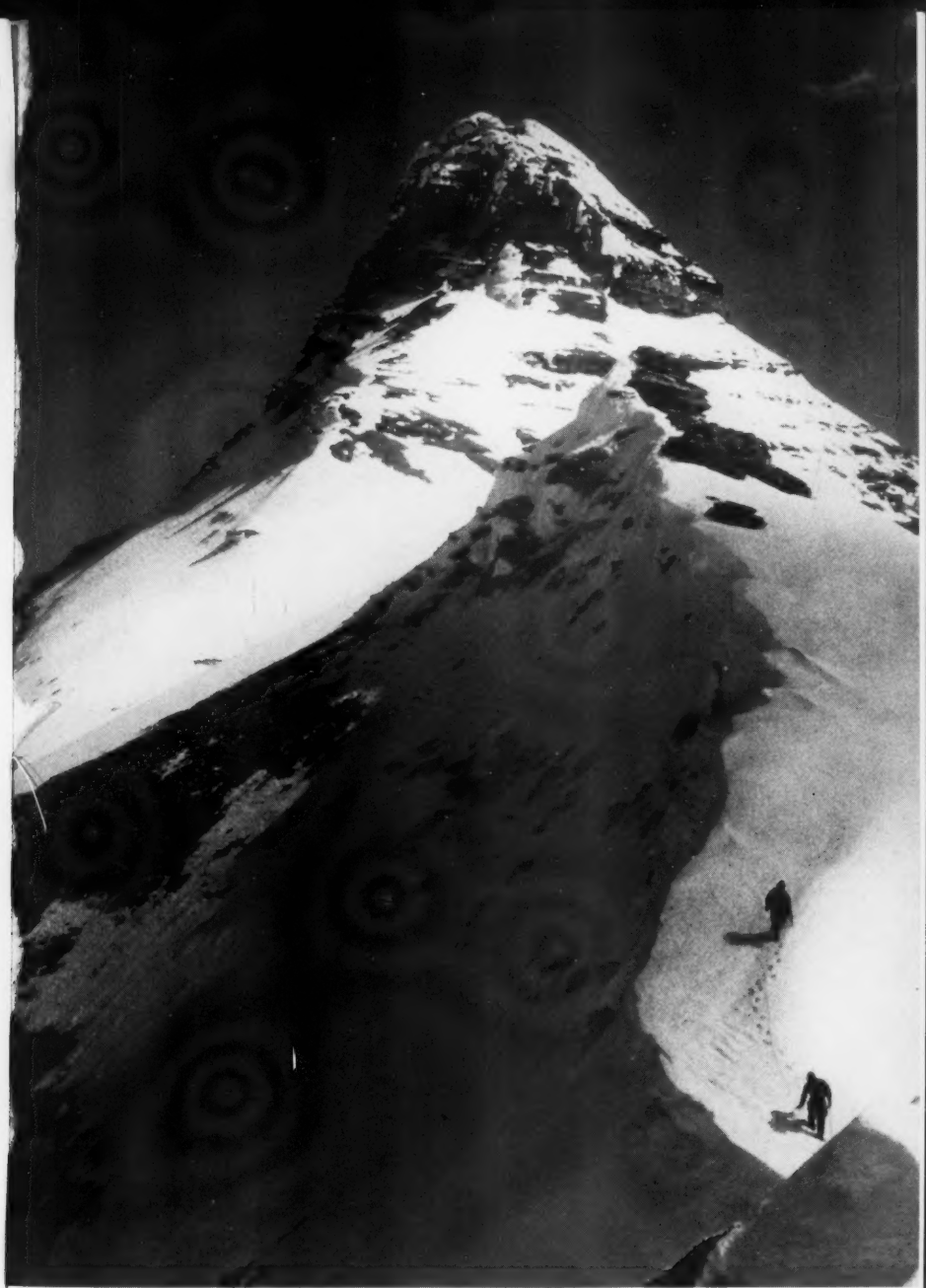
A HISTORY of the northernmost Canadian Rockies, the mountains of the Mt. Ida – Mt. Sir Alexander area, should start well before 1875, for the Cree Indians had recognized the big mountain, Sir Alexander, for centuries as "Kitchi," "big" or "great." But a CPR explorer, Jarvis, was the first man to gaze at these hills with anything like a mountaineer's eye. He accepted the Cree name Kitchi for Sir Alexander and named the sharp peak above his east – west pass (Jarvis Pass) Mt. Ida, for some reason probably not involving the history of Troy. After Jarvis' visit in 1875 the region languished until the 'teens when a succession of pack trains brought the first real mountaineers to see what they could find. In 1914 S. Prescott Fay traveled north along the eastern flanks of the Rockies from Yellowhead Pass and the following year published the basic article on these mountains in *Appalachia*. His account, and particularly his illustrations, were responsible for our interest in the area which resulted in the 1954 Mt. Ida expedition.

During the 1914-1916 period Mt. Sir Alexander (then Mt. Alexander Mackenzie) was reached several times by parties led by Mary Jobe. Summit ridge cornices blocked a fine attempt on Sir Alexander in 1915 by the Jobe climbers. In 1916 Frederick Vreeland reached the western flanks of these peaks by canoe from the Fraser river watershed. In 1922 a flight over the area resulted in some early mountain aerial photos which kept interest in Sir Alexander at a high pitch. Finally, in 1929, the Gilmour party climbed Sir Alexander, and with that success interest in these

northern peaks waned. For 25 years no one visited this land, though Mt. Ida and a score of lesser lights remained unexplored and unclimbed. The main reason for this was, of course, inaccessibility. A pack trip of at least 12 days each way is a pretty fair obstacle for most modern short-of-time folk. This isolation also had limited the ascents of consequence in this region to two peaks, Mt. Sir Alexander and Mt. St. George, prior to June 1954, in an area first visited by climbers 40 years before!

Mt. Ida (10,472 ft.) stands head and shoulders above its neighbors. It juts up about a dozen miles north of Mt. Sir Alexander, the only other peak of comparable size (10,740 ft.—checked by airplane altimeter this summer) in the region. Around the flanks of Ida and Sir Alexander are a number of fine glaciers and extensive snowfields, and here and there on the general uplift smaller peaks rear up to altitudes of 9000 to 9500 feet. There are about 20 of these, ranging from sheer-walled spectacular towers, like the Kitchi Tower, through quartzite fangs like the 'Sharks Tooth', to more typical Rockies of the sedimentary, sheer, loose-rock variety. Just north of Ida is the 4500 foot Jarvis Pass, and north of the pass the Rockies flatten out abruptly. There are many patches of glaciation to the north, but almost no dramatic peaks and no elevations much over 8500 feet. To the east of Ida wooded mountains flatten out gradually and disappear. To the west the country is wooded and rough, cut and chopped by a host of streams churning down to the wide, flat Fraser valley.

The 1954 Mt. Ida party consisted of Alice and Fred Dunn, James Newell, and David Bernays. We left the East in late June, celebrated our escape to the wide open spaces by watching the solar eclipse at dawn in Wisconsin and celebrated further by climbing Mt. Athabaska on the Fourth of July. We were scorched by the fireworks that day—several of us were still recovering from sunburn a week later. We had made arrangements with Pacific Western Airlines to fly in to a lake at Jarvis Pass by seaplane from Prince George, B. C. These plans worked out well. We rolled into Prince George from Jasper on the early morning train on July 6th, and at noon on the same day we and our 600 pounds of gear were perched precariously on the dark wooded



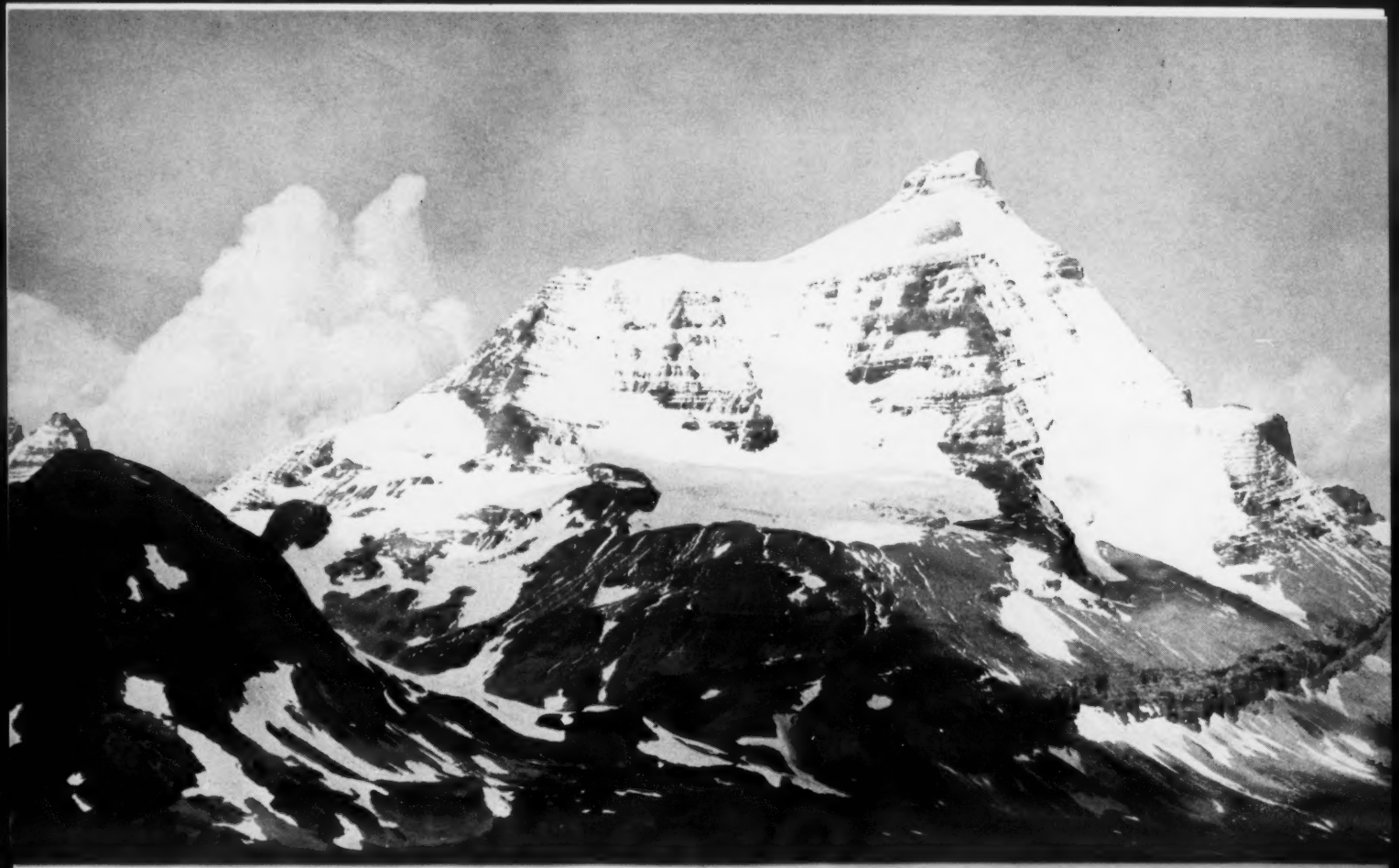
SOUTHWEST RIDGE OF MT. IDA

Climb of southwest buttress just completed.

View northeast, Notch in summit cliffs.

Visible just above highest crest of foreground ridge.

Photo, F. L. Dunn



shore of Jarvis Lake. We had made a delightful one-hour flight of 100 miles due east from Prince George, a short aerial survey of the mountains, and an easy landing on the lake. Hugh Russell and his powerful yellow Beaver would return for us in 23 days, weather permitting. The Beaver taxied off up the lake, rushed past us 50 feet up in the air a few minutes later, then became a speck in the western sky, and we were left to our own devices.

Our main objective was the ascent of Mt. Ida. We also hoped to explore the mountain area around Ida and north of Sir Alexander. Finally, we hoped to climb a few other peaks and perhaps even tackle Sir Alexander. The landing spot on the southwest shore of the lake was only a steep bank covered with toppled and toppling trees, so our first job was the creation of a real base camp several hundred paces back from the lake shore in the woods.

From the first camp we started a blazed trail toward Ida Creek. Three days were spent working out a 3-mile route through the windfalls and heavy timber before we finally burst out onto the gravel flats of the creek. Ida loomed above us, but there were clearly no routes on the northern or eastern sides of the mountain. We continued upstream for about two miles until we located an ideal site for a second base camp—beside a merry waterfall. Because of the water ouzels here this became Ouzel Falls Camp. Another day of relay packing—we had already relayed from the lake to the first gravel flats—established us comfortably at this camp. Then came the first two of our nine days of really poor weather. It rained and rained.

On the 13th we were off early to enjoy a beautiful day—one of only three or four such days during the month—on Mt. St. George (9600 ft.). Our route led up the St. George glacier to a near-hanging glacier on the northeast side of the peak. This we ascended with many twists and turns; one particularly nice vertical step-cutting job by Dave took us by a crucial sérac. We

MT. IDA FROM SOUTHEAST
Ida Creek valley in foreground.
The twin-summit peak of the Three Sisters group visible in left background.
Photo, F. L. Dunn

came up to a dip on the northwest ridge, which itself offered some interesting rock pitches, followed by a pleasant snow-corniced summit ridge. We were amazed to discover a cairn on a rocky platform a few paces from the top. At that time we thought that Sir Alexander was the only climbed peak in the area. Later we learned that St. George was climbed in 1929 by members of the Gilmour party from a camp above Kakwa Lake. Their climb must have been up the southwest rock ridge, apparently the only possible route from Kakwa Lake valley.

We were able to study Ida carefully from the St. George side of the valley. We decided to tackle the mountain by establishing a camp beside an ice-choked lake on the southern flank and ascending the southwest buttress from there. This looked as though it might be a formidable climb. Once on top of the buttress, we hoped to follow the southwest ridge to the base of the 800-foot high summit cap. This appeared impregnable on all sides but the southeast, where we could see a transverse break in the cliff bands which appeared to give access to the summit ridge.

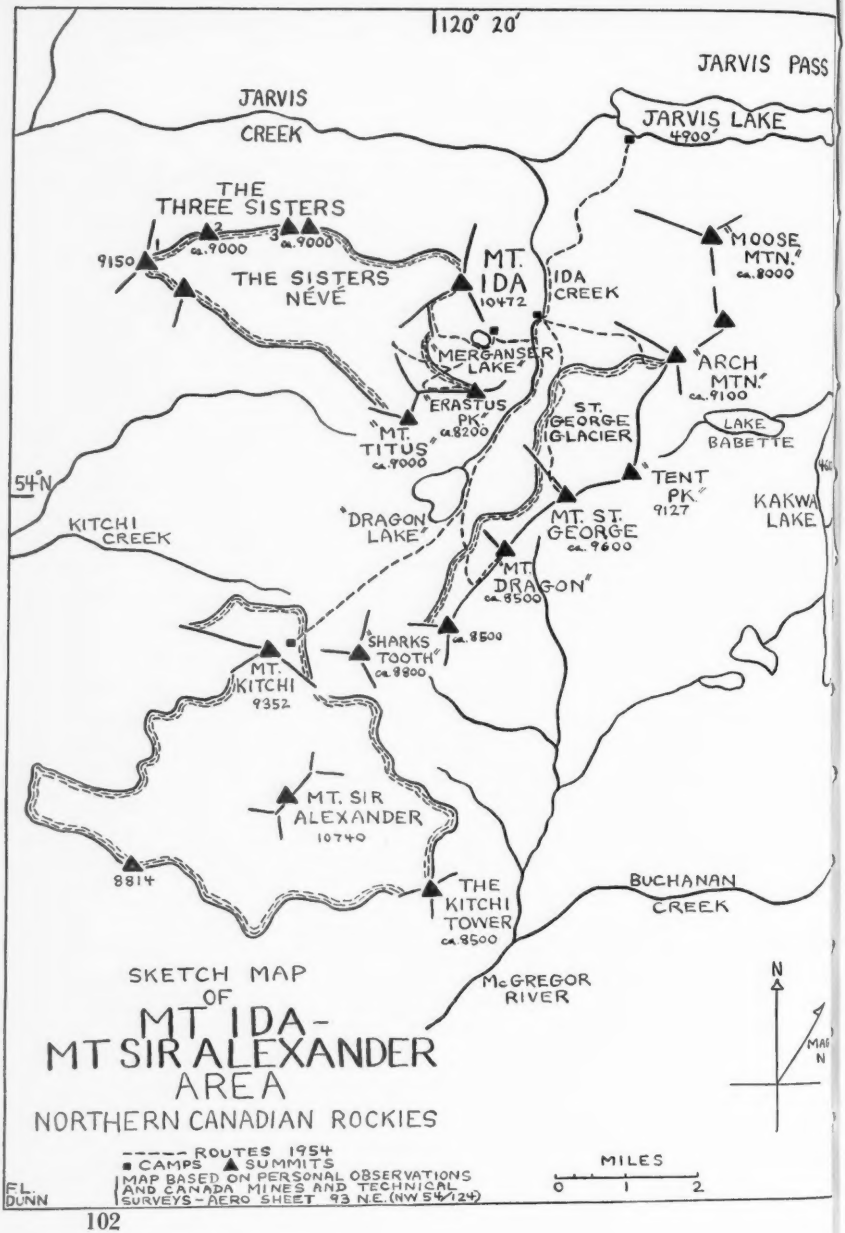
On the 15th we established our high Merganser Lake camp after a moderate pack of a few hours from Ouzel Falls. A Hooded Merganser was paddling around in the lake amongst the junior icebergs as we settled down in our tents for the night. Our hope for good weather was realized in the morning. We left camp at 6:00 and to our surprise, reached the top of the buttress in only four hours. Though the climb was steep, the rock was not difficult. We were elated until we looked ahead of us. The southwest ridge appeared easy enough except for one steep traverse which would be necessary to bypass a large cornice, but the cap did not look promising.

When we reached the base of the summit cliffs, however, we discovered that the vertical break was a possible route. The break was a narrow, very steep, blue-ice-filled notch, partly overhung by dripping rocks and about 100 feet high. After a struggle up alternating bands of wet down-sloping slab and deep heavy snow to reach the base of the cleft, we climbed it with a good deal of step chopping. A few more hundreds of feet up small cliff bands and steep snow slopes brought us out on a nar-

row corniced summit ridge. My wife took over the lead for the last few dramatic feet of the climb, scrambled onto a little crest which we thought was surely the summit, and stopped dumbfounded. We came up to her and discovered that the real summit was 30 feet north and 4 feet higher. But no wonder she had stopped, for the summit was a mound of snow on a spire separated from our knob by a narrow webbing of snow. With everyone belaying, we sent Dave out on the web and he crossed to the summit successfully. We all followed and much cheering ensued. Then back we went and Jim, last across, had a crucial chunk of the web fall away from under him as he stepped to safety. We built a cairn on the knob, peered over the awesome brink, and started down. The return to camp was marked only by a thunderstorm which swept by us while we were on the buttress. Mt. Ida was an interesting and varied climb. We feel pretty sure that the summit cap can only be climbed by the southeast notch route.

The weather disintegrated after Mt. Ida was climbed. On the 18th we climbed a small peak of fine solid quartzite above Merganser Lake—"Erastus Peak." The following day we separated in the hope that by so-doing we could explore twice as much country in the nine remaining days as we could have done as a group of four. Alice and I were planning to travel across the "Sisters Neve," climb several of the peaks of the Three Sisters group, and examine the western approaches to the range. Dave and Jim were going to move south toward Sir Alexander to look over the northern approach to that mountain and climb one or more of the nice peaks in that region, including possibly a try at Sir Alexander.

Unfortunately, the rains began about the time we parted. Dave and Jim packed south in the rain and finally set up their tent on the north-side snow slopes of Mt. Kitchi (9352 ft.). Alice and I remained at Merganser Lake. For the next six days Dave and Jim kept to their tent, sitting out a nearly continuous snowfall. Alice and I stayed on at the lake three days, bailing the tent hourly. The snowfall on Mt. Kitchi was matched by rain at the lower elevation of the lake. Giving up all hope of traveling out onto the Sisters Neve, we packed up our things


120° 20'
JARVIS PASS
JARVIS CREEK
JARVIS LAKE 4900'
THE THREE SISTERS
1
2
3
ca. 9000
ca. 9000
9150
THE SISTERS NÉVÉ
MT. IDA 10472
IDA CREEK
MOOSE MTN. ca. 8000
MERGANSER LAKE
ARCH MTN. ca. 9100
ERASTUS PK. ca. 8200
MT. TITUS ca. 9000
ST. GEORGE GLACIER
LAKE BABETTE
54°N
TENT PK. 9127
KAKWA LAKE
KITCHI CREEK
DRAGON LAKE
MT. ST. GEORGE ca. 9600
MT. DRAGON ca. 8500
SHARKS TOOTH ca. 9800
ca. 8500
MT. KITCHI 9352
MT. SIR ALEXANDER 10740
8814
THE KITCHI TOWER ca. 8500
BUCHANAN CREEK
McGREGOR RIVER
N
MAG N
SKETCH MAP OF MT IDA - MT SIR ALEXANDER AREA
NORTHERN CANADIAN ROCKIES
ROUTES 1954
CAMPS
SUMMITS
MAP BASED ON PERSONAL OBSERVATIONS AND CANADA MINES AND TECHNICAL SURVEYS - AERO SHEET 93 N.E. (NW 54/124)
MILES
0 1 2
F.L. DUNN

and slogged down to the protection of the trees at Ouzel Falls. Two days later in murky weather—it was still snowing with the others—we climbed weirdly shaped "Arch Mountain," a peak northeast of St. George, which rises in great cliffs above Kakwa Lake. The ascent was not difficult.

On the 25th we climbed another small flanker of Mt. St. George, "Mt. Dragon," a pleasant pure quartzite rock-ridge climb. A few minutes after our return to Ouzel Falls that day, Dave and Jim trudged in with arctic tales to tell.

The rains continued. We packed out to Jarvis Lake on the 28th, and the next morning a lucky break in the weather allowed the Beaver to drop down to us from the skies. At 11:00 A.M. the pontoons pulled free of the water. We roared past the northern brow of Mt. Ida in a pelting rainstorm, waggled our wings for a few last-minute photographs, and turned our faces toward the Fraser valley.

Summary of Statistics

Ascents: Mt. Ida, 10,472 ft., first ascent, July 16, 1954; "Erastus Peak," ca. 8200 ft., first ascent, July 18th; Mt. St. George, ca. 9600 ft., second ascent, July 13th. First ascents of "Arch Mtn.," ca. 9100 ft., July 24th, and "Mt. Dragon," ca. 8500 ft., July 25th, by Alice and Fred Dunn.

Exploration: Region around Mt. Ida and northern approaches to Mt. Sir Alexander.

Personnel: Frederick L. Dunn, leader; Alice R. Dunn, David Bernays, James M. Newell.

Two Expeditions in the Northern Purcells

PETER ROBINSON

In late August 1953 four friends and I completed a high-level traverse through a large unexplored section of the northern part of the Purcell Range of British Columbia.[1] Unfortunately the weather was exceedingly bad and we were in no position to wait for it. At the time, we longed to return to these valleys and peaks, and enjoy them in more leisurely fashion. Despite considerable planning, none of my companions ultimately found himself able to fulfill this wish, while, rather unexpectedly, I found myself free to go.[2]

I. The Wedge Peak Group

On July 6, 1954, a party of three gathered in Spillimacheen, B. C. My companions were Dick Morden, of London, England, with four sessions in the Alps behind him, not to mention numerous "dicey bits" on British rocks; and Bill Briggs, an old Dartmouth friend and 1952 companion in the Purcell Range. Our first objective was a high, wedge-shaped peak ("Unnamed—over 10,000") just west of the Purcell watershed, requiring an approach over high passes from Vermont Creek. Since it would be possible to camp in the forest, all "luxuries" such as air mattresses, tents, and stoves were dispensed with, thus reducing our packs to a respectable 40 lbs.

The approach to the cabins on Vermont Creek was made on

[1] *A. A. J.* ix, 47.
[2] See map, page 62, *A. A. J.* 1954, which covers this area.

July 7th and 8th by the usual lumber roads and trails. The weather was reasonable and the only incidents of particular interest occurred when we hitch-hiked across the flooded Columbia on a bulldozer, made the log crossing over the raging Bobbie Burns Creek, and when we were forced to cut our way through a quarter mile of forest which had been flattened by an avalanche the previous winter. Continuous rain on July 9th gave us a good excuse to spend the day enjoying the cozy warmth of the Vermont Creek cabin.

There was little improvement in the weather the following day, but we decided to be on our way up the valley and over the divide. The last winter's extremely heavy snowfall, which at lower elevations had caused slides to fight through, now blessed us by thoroughly covering the bush, swamps, and streams. From the low divide between Vermont Creek and the North Fork of Crystalline Creek, at the snout of the glacier, we descended the latter creek to a point where we could turn westward into the Valley of the Lakes.[3] After shivering through a lunch in the last trees, we assailed the steep snow pass at the southwest corner of the valley, as a sleet storm assailed us. Beyond the pass a series of rock folds were crossed to a gentle watershed pass (Middle Fork of Crystalline Creek to an unnamed tributary of Duncan River) above a lake on the east side. Here Bill came upon what were *unquestionably* tracks of the "Abominable Snowman"; hence "Snowman Pass" and "Snowman Lake." West of the watershed we swung around to the south, crossed over a wooded shoulder, and descended through the snowy woods until a suitable spot was found for constructing a lean-to. Three hours later we were huddled under a mantle of dripping boughs trying to dry ourselves over a fire.

The situation seemed even more discouraging next morning as rain continued to fall intermittently while we lay crowded tightly in our little home. However, occasional patches of blue gave encouragement. In the afternoon Dick and I set out to explore and soon found that we were camped near a broad terrace 500 feet above the main valley. It was but an easy twenty-minute hike along the valley side to the tongue of the Wedge

[3] An important variation on the 1953 route.

Peak Glacier. An examination of the glacial boulders confirmed my earlier guess that the ridge of peaks on the west side of the valley is composed of granite.

When we were back in camp in the early evening, the clouds momentarily tore away, revealing a towering granite peak to the southwest, its top frosted white like a cake, suggesting the name "Sugarplum Spire." The coldness of the evening gave us hope for better weather.

At 10:30[4] the next morning we set out under gray skies to have a go at Wedge Peak (9870 ft.[5]). The entire two-mile length of the glacier, with deep soft snow at the top, was ascended to the col (by 1:15) at the base of the corniced east snow ridge. A roaring southwest wind lowered our spirits until we were bundled up and well on our way up the gradually steepening arête. Bill carefully kicked a way up between the large cornice on the right and the snowy precipices on the left, which became more impressive as the ridge approached a 45-degree slope. The ridge itself was capped at the top by a cornice, necessitating a traverse across a steep slope to the left and a short climb onto the top from the south (at 2:45). As we approached the highest point of scalloped cornice, we discovered rather suddenly that the rewards of these few moments far surpassed the days of drudgery and dampness which had preceded. For Dick it was a first first ascent. To the west, over the unexplored reaches of the Battle Range, great patches of blue sky were moving toward us on the wings of a dry, exhilarating wind.

Bill constructed a cairn, Dick and I took vertical angles and photographs, and in less than 30 minutes we were on our way back to the col. After lunch there (4:10), we climbed up onto

[4] Mountain Daylight Time although we were officially in the Pacific Time Zone.

[5] Altitudes given are estimates based on a series of vertical angles taken during the 1954 season.

Top—**WEDGE PEAK AND SURGARPLUM SPIRE FROM NORTHEAST**
on route back to Vermont Creek.
Photo, R. Morden

Bottom—**SUMMIT OF SUGARPLUM SPIRE FROM SECOND PEAK**
Photograph from color slide.
Photo, P. Robinson

the south end of the Barrier Ridge, which lies on the Purcell watershed east of Wedge Peak Glacier and forms a high barrier overlooking the head of the Middle Fork of Crystalline Creek. By this time the sky had cleared and we scrambled along in the warm sunshine to Barrier Peak (9330 ft.), the highest point, by 5:30. Continuing northward, Bill wandered ahead, finding the route, while Dick and I followed, making frequent halts for photographs, enjoying the perfect finish of a perfect day. Finally we climbed from the ridge down a series of ledges and gullies to the Wedge Peak Glacier. A last lingering halt was made on a wooded shoulder just south of camp to admire the evening light on Wedge Peak and the south wall of the Carbonate Group to the north across the valley. As a site for a timberline hut in the range, this place is unsurpassed.

Our objective for the next day was Sugarplum Spire (9640 ft.). Leaving camp at 10:15 A.M., we ascended a steep glacier to the col (reached at 12:45) north of our objective. The first vertical buttress was avoided by circling around its west face and into a gully leading back to the crest of the northwest ridge. Several hundred feet of scrambling brought us to the steep upper part of the first main step in the ridge. Dick, with the one ice-axe we had elected to bring, cut steps up a 100-foot snow slope and I took the lead on the rocks above. A move around and up a left-hand corner brought us to some ledges at the base of a broad cliff of lichen-covered rock with no obvious routes. The rock proved more difficult than it looked and we found no holds where we most expected them. I moved off to the left over a short chockstone pitch to a good belay. The last pitch went up a series of cracks and slabs which proved fairly difficult, and I have since regretted that I didn't place at least one piton.

From the top of the first step we had our first look at the ridge

Top—**EAST PEAK OF MT. THORINGTON FROM CONRAD ICEFIELD**
Ridge of ascent on left. Face foreshortened.
Photo, R. Morden

Bottom—**WEDGE PEAK AND WEDGE PEAK GLACIER**
Barrier Ridge to left.
Photograph from color slide.
Photo, P. Robinson

ahead and lost much confidence in our ultimate success. A short descent over snowy ledges brought us to the base of a jagged, knife-edged buttress leading to the second peak. The ascent of this, mostly on the west face, proved strenuous and entertaining. At one point I dragged myself onto the crest of the ridge and discovered that the opposite side was a vast overhang and I was looking almost straight into the bergschrund far below.

At the top of the second peak we came face to face with the final peak, the "Sugarplum," a snow-draped block with a few rock ribs standing out from it. Below the second peak a more immediate obstacle presented itself in the form of a deep vertical notch just too wide to leap. Reaching around under an overhang to the right, I discovered a jammed chockstone on which it was possible to swing at arm's length and drop into a side gully whence the opposite side of the gap was climbed. With his short stature, Dick, coming down last, had an awkward time.

A second short drop and a long scramble on boulders and ledges brought us to the foot of a wide black rib. I led up exposed snow and rock to the left, then made an awkward move right to a belay position on the rib itself. Bill furnished the final belay, as I led up a 100-foot blocky chimney leading to the edge of the snow-cap where the others joined me.

Together we moved toward the summit on soft snow. Because of my greater weight, as a final humiliation I was forced to crawl upward on hands and knees to keep from sinking in to my hips. The highest point was on a curving edge of snow which we crossed to the highest rocks beyond. It had been the most difficult first ascent any of us had made. We had been on the ridge for four and a half hours, and although it was now 5:30 P.M., there was hardly a cloud in the sky. Visibility was perfect and we believe we even saw Mt. Sir Sandford to the left of Sir Donald. Nearby Wedge Peak looked more impressive than ever, as did the south ridge of our peak, which will surely be an interesting climb.

Although the tension of the ascent had abated somewhat, we soon had to concern ourselves with the descent, for the route we had come up was unsuitable if we hoped to get off by dark. Climbing down the same route on the final peak, we continued

diagonally northward down the snow and ledges of the west face. Bill took over the route finding, while I came down as last man with the one ice-axe. Constantly belaying, we reached the snowfield at the base in two hours, then circled in a few minutes back to our other axes and the col (8:20). Camp was reached just after sunset at 9:45.

On July 14th we returned to Vermont Creek cabin, using a new pass direct to the Valley of the Lakes, thence north over "Cold Shiver Col" and down the glacier into Vermont Creek. The next day we reached Spillimacheen River in 6 hours and 15 minutes, and were fortunate in catching a ride out to Parson so that the evening could be spent soaking in Radium Hot Springs.

II. Return to the Conrad Icefield

In Spillimacheen we were met by Virg Day, brother of Rob Day who had been on the 1953 trip. Unfortunately, Bill had aggravated some old hip trouble and deemed it inadvisable to join in our back-packing plans. Several days later, after a long struggle which included the construction of two "bridges," our friend Ralph Wass of Spillimacheen became the first man in 1954 to get a vehicle (farm tractor and wagon) as far as the Bugaboo cabin. For the next few days, during which the weather was decidedly poor, we moved supplies up to Boulder Camp, where we met a party led by Bob Hind, and established a cache on Bugaboo – Snowpatch Col.

The bad weather broke on July 23rd and the next morning Dick, Virg, and I set out over Bugaboo – Snowpatch Col to make an assault on the unclimbed Howser Middle Tower (10,750 ft.). At the notorious bergschrund we were lucky to find a narrow spot to the left, and at 11:00 Dick started over the bulging soft snow of the upper lip, belayed by both Virg and me. Twenty minutes later Dick had established a belay on the 52° slope above, and I went up to begin the long job of step kicking.

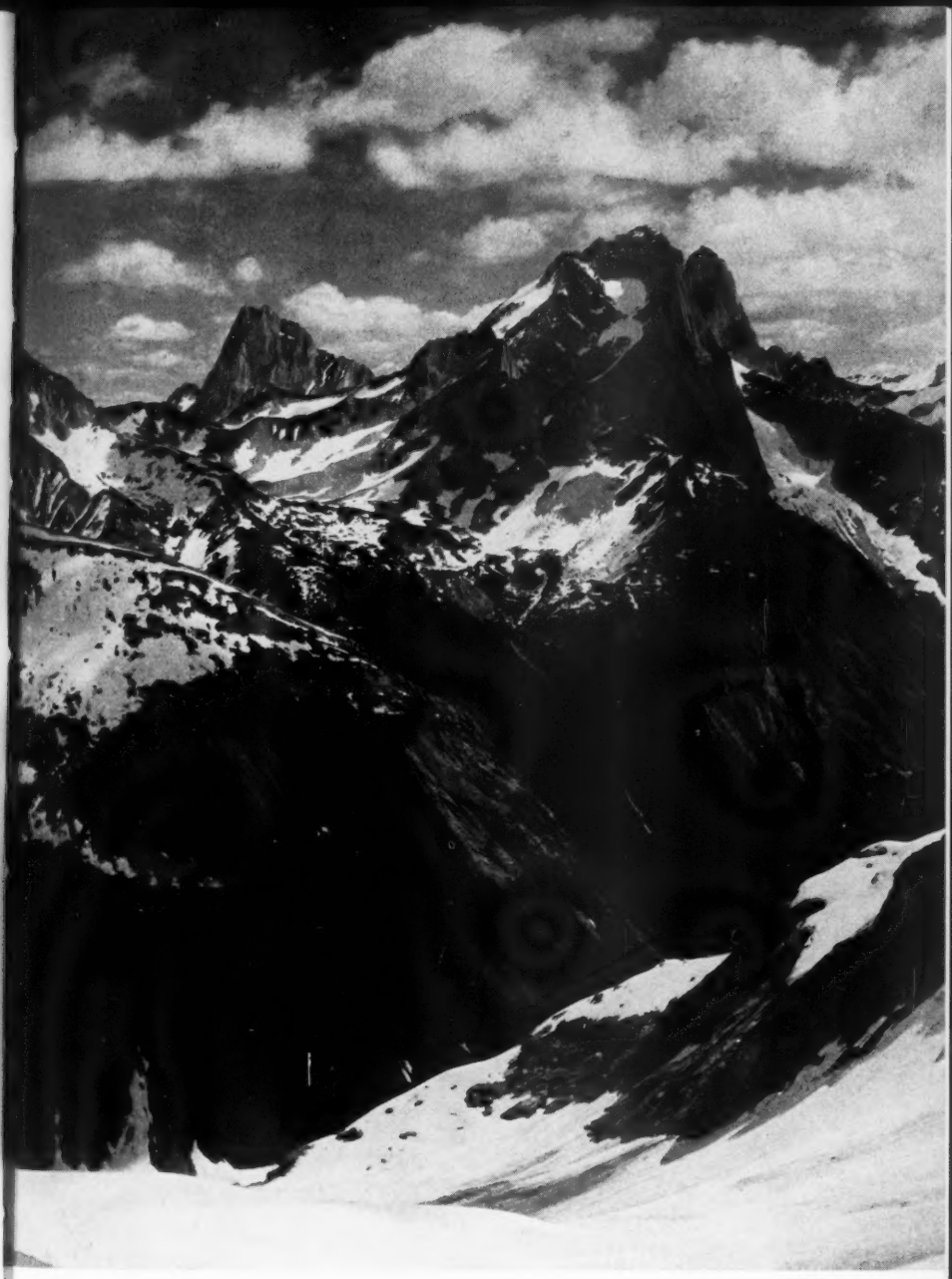
The soft snow surface was deeply furrowed by slides, but underneath was a more compact layer into which crampons bit readily. Off to the right where the sun struck the slope more directly, frequent snow slides hissed downward into the berg-

schrund. Two rope lengths of diagonal traversing to the right and three more lengths straight up toward the col brought us to the lowest rocks at 2:00 P.M. Dick led up a chimney, protecting himself with slings, and Virg moved up beyond and into a steep gully. I then led up through the treacherous gully and a short rock pitch to a firm belay position near the top of the central buttress just below the col. Dick joined me and investigated the final 30-foot slab leading to the col. With a covering of four inches of rotten snow and ice, it was soon abandoned. Protected by slings, Dick moved to the left across a series of bulbous masses of rotten snow, but found no route up the last ten-foot wall to the col. We could see that the nearby buttress of the peak itself was heavily coated with snow and rime ice, making chances of an ascent very small. At 4:30 we decided to turn back, for wet clothes and cramped positions had become a serious matter. After a careful descent, backing down most of the snow steps, we recrossed the 'schrund at 7:00 and got back to camp at 8:45.

After a day of rest, we moved camp on July 26th over Bugaboo – Snowpatch Col, across Vowell (formerly Warren) Glacier, and across the glacier basin at the head of East Creek to our 1953 Camp VII, a cave affectionately known as "Shaft No. 7," overlooking the headwaters of Malloy Creek. The next day we made the third ascent of Mt. Conrad (10,670 ft.) in four hours. On the spacious summit we couldn't find the record of our 1953 ascent, but the view of the Conrad Icefield[6] and surrounding areas, which then had been concealed by clouds, now became a revelation. Before returning to camp, we descended westward across the West Névé to a minor peak (Giegerich Overlook, ca. 9900 ft.) on the wall above the head of Giegerich Creek.

The long trip westward for the ascent of Mt. Thorington was made on July 28th. Descending 1000 feet into the Malloy Valley and climbing 1500 feet up the west side, we crossed three miles of the main Conrad Glacier and the Northwest Névé, and climbed the narrow southeast arête of the East Peak which, by virtue of a resistant granitic dike, proved to be highest. Virg,

[6] The Conrad Icefield, 15 square miles, is the largest connected body of ice in the Purcell Range. It has altogether nine outflow glaciers, of which the Conrad Glacier is the longest, measuring five miles.



BUGABOO AND HOWSER SPIRES FROM WEST

Seen from col leading to MacCarthy Glacier.

West Branch of East Creek in foreground.

Direct pass to Vowell Glacier just left of Bugaboo Spire.

Photo, R. Morden

on his first first ascent, led the way to the corniced summit, and a massive cairn was built on the highest rocks. Camp was reached again at 10:15 P.M. after 13½ hours.

The day after the Thorington ascent, we breakfasted at 1:00 P.M. and later in the afternoon wandered up nearby Osprey Peak (9580 ft.), northeast of camp. Near the east col, on the way, we got a close look at some spectacular needles and a natural arch. From the broad summit we enjoyed one of the finest views of the Conrad Icefield.

July 30th, camp was moved southward over the pass to the first clump of trees on the east bank of the East Branch of East Creek. In the center of this grove, which we called Pleasure Island, a fountain of crystal clear water, the "Fountain of Youth," gushed up continuously from a hole between the rocks.

The 31st was occupied in a 13½-hour expedition to a high peak (10,070 ft.) to the southwest of Mt. Conrad, which we named in honor of A. H. MacCarthy. The greatest difficulties of the day were the morning and evening stream crossings in the vicinity of camp. Climbing around a high shoulder to the upper basin of the West Branch of East Creek, we crossed a col leading to the MacCarthy Glacier, which was ascended for more than a mile to the south ridge of our objective. From the summit one could see the entire west face of the Howser Spires. Another fine peak (9990 ft.), one mile to our south, we tentatively named for W. E. Stone, who had also climbed in the Purcells. Over a shoulder of the great Four Squatters Range, a section of Kootenay Lake could be seen far away to the south in the Purcell Trench.

Altering the route slightly on the way back, we climbed down the West Branch of East Creek to the junction with the East Branch. Deeply incised into the intrusive rock, the valley is choked with gigantic boulders and West Kootenay bush. The side walls in many places consisted of enormous slabs covered by cascades. Dominating the scene, 5,000 feet above, is Howser Spire, while on the southwest side of the valley a range of jagged granodiorite peaks rise 3,000 to 3,500 feet.

OSPREY PEAK NEEDLES AND HOWSER SPIRE
Photo, R. Morden

August 1st we spent enjoying "Pleasure Island" and on the 2nd returned to Boulder Camp by a direct pass just to the north of Howser Spire and leading past a lake to the west side of Vowell Glacier. That evening the long period of almost perfect weather came to an end in a violent thunderstorm. A last few days were spent enjoying the Bugaboos with various friends from the East. Bill had improved considerably and arrived carrying skis. Dick and I made a minor first ascent between Eastpost and Brenta Spires, a prow-shaped peak we called "Whippingpost Spire." The final day we climbed Bugaboo Spire and descended to the cabin in the valley.

So ended one of our finest mountain trips. Perhaps more parties at Boulder Camp in the future will avail themselves of the chance to see more of this country beyond the Bugaboos.

Summary of Statistics (Part I)

ASCENTS: Wedge Peak, 9870 ft., first ascent, July 22, 1954; Barrier Peak, 9330 ft., first ascent, July 12; Sugarplum Spire, 9640 ft., first ascent, July 13.

EXPLORATION: Wedge Peak Group, Purcell Range, British Columbia.

PERSONNEL: William Briggs, Richard Morden, Peter Robinson.

(Part II)

ASCENTS: Mt. Conrad, 10,670 ft., third ascent, July 27; Mt. Thorington (East Peak), 10,000 ft., first ascent, July 28; Osprey Peak, 9580 ft., first ascent, July 29; Mt. MacCarthy, 10,070 ft., first ascent, July 31.

EXPLORATION: Conrad Group of the Purcell Range, British Columbia, including the Conrad Icefield and branches of East Creek.

PERSONNEL: Virgil Day, Richard Morden, Peter Robinson.

Expédition au Gaurisankar et Mission Scientifique au Nepal

RAYMOND LAMBERT

Translated from the French by Joan E. Fisher, Alpine Club of Canada

AFTER I had taken part in two Swiss expeditions to Mt. Everest in 1952, my one desire was to return again to the Himalayas of Nepal. As early as 1950, my friend Rene Dittert and I thought of climbing Cho Oyu. In the autumn of 1953 I began to organize an expedition which would attempt this mountain, but unfortunately, conversations with the Foundation for Alpine Research, at Zurich, did not give the hoped-for results. So it was that on April 12, 1954, I had to make arrangements myself with the government of Nepal and ask at that time for permission to take a reconnaissance expedition to the Guarisankar massif. This region was almost completely unknown, although the famous explorer Eric Shipton had once led a small British expedition through this area.

With the Comité Himalayen de Genéve, we decided on four main objectives for the expedition:

1. Reconnoiter the Gaurisankar – Melungtse massifs and study the possibility of ascent.
2. Map the region and bring back a photographic coverage of it.
3. Collect samples of rock to complete the geological study undertaken in 1952 by Dr. Lombard.

4. Gather plants and seeds to augment the collection of the Botanical Gardens at Geneva.

The members of the expedition were as follows: Raymond Lambert, leader; Mme. Claude Kogan, French, and member of two South American expeditions (in 1953, she climbed the Nun Kun, 23,410 feet); Dr. Jean Juge, Doctor of Science; Dr. Franz Lochmatter, Doctor of Medicine; Albert Zimmerman, head of the Botanical Gardens of Geneva; Denis Bertholet, photographer and motion-picture expert; and Marc Stengelin, student. We were also accompanied by nine Sherpas.

The expedition was financed by the members themselves, by several private contributions, and also through the generous help of suppliers. On June 18th, we were thrilled to receive confirmation from the Nepalese government of the authorization of the expedition. Our equipment, weighing in all 5,485 lbs., was rapidly packed and forwarded by ship from Genoa, July 29th. It was accompanied to Bombay by five members of the expedition, and from there by train to Patna. Mme. Kogan and I followed by plane, and we all reunited at Katmandu on August 31, 1954.

After spending several days in the capital of Nepal, we began our march toward the region on September 5th. For five days we followed the regular route taken by expeditions to Everest, but after Charicot, we turned off and headed north. We followed the Bhota Kosi to the point where it by-passes the valley of the Rolwaling Khola. Then we proceeded up the valley as far as Beding, which is situated at 11,943 feet and is somewhat to the southeast of the Gaurisankar. As we had planned in advance, it took us exactly 12 days to reach this point. From Beding, we continued north, crossing the Hadung-La, at an altitude of 17,717 feet, and eventually established base camp beside a lake which lay directly south of Meluntse.

Apart from cartographic, geological, and botanical activities undertaken from this camp, we also made two extensive reconnaissances of Gaurisankar. We were soon stopped by what seemed insurmountable difficulties. The slopes and arêtes are very steep; the latter are all heavily corniced and extremely dangerous for any ascent. It is doubtful whether an attempt on the summit can be made, in view of the risks involved. In any case, a heavily equipped expedition, with a great number of

climbers and Sherpas would be necessary. Melungste also offers no possibility of ascent — with the possible exception of the east side.

Our work in the Gaurisankar – Melungste basin ended, the expedition left the area via the Melunga-La. This was the first time the pass had ever been crossed by an important train of coolies. We then arrived at Chhule, and from there by way of the Nangpa-La, we reached the foot of Cho Oyu on October 12th. It was here that we met Dr. Tichy's Austrian expedition, which had already been at Cho Oyu for some time. We agreed that the Austrians were to make their attempts first, and only afterwards would we, in turn, try for the summit. On October 19, 1954, the Austrians successfully climbed Cho Oyu, and by the next day, October 20th, bad weather had closed in around the mountain. Nevertheless, we began our assault. On the 27th, Mme. Kogan and I established Camp 4 below the summit at 25,263 feet. An icy gale, the following morning, prevented us from setting out for the final assault before 9:00 A.M., and we had to give up the summit. There was not enough time to make the climb and return to Camp 4 before night. To bivouac at the summit under the existing circumstances would have meant disaster.

Conclusions

From the meteorological point of view, the 1954 monsoon was prolonged until October 5th, and on October 20th, winter set in. This meant that winter arrived a good month in advance, because in 1952, on November 20th, I was with Tenzing Norkay on the South Col of Everest.

The return march was made directly south, and we brought back with us an extensive photographic record. The results of both the reconnaissance and the botanical and geological efforts were excellent; and in general, we were able to accomplish a great deal of important work.

Summary of Statistics

ATTEMPTED: Cho Oyu.
HEIGHT REACHED: 25,410 ft. by Lambert and Mme. Kogan, at

this date, October 28th, the highest elevation ever reached by a woman climber.

EXPLORATION: Gaurisankar – Melungtse basin.

PERSONNEL: Raymond Lambert, leader; Denis Bertholet, Dr. Jean Juge, Claude Kogan, Dr. Franz Lochmatter, Marc Stengelin, and Albert Zimmerman.

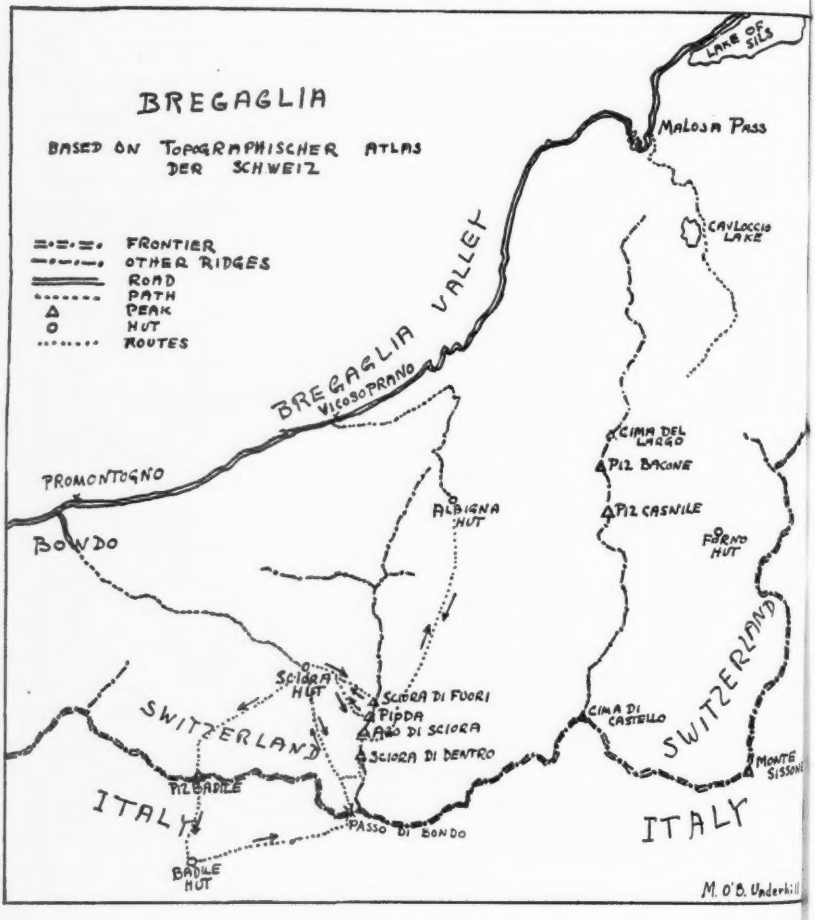
Switzerland's Bregaglia in 1951

DON M. WOODS

One of Switzerland's finest granite climbing areas is Val Bregaglia or, as it is known in German, the Bergell. There are three climbing huts on the north (Swiss) side of the Bregaglia Group, the Forno, the Albigna, and the Sciora. The Forno Hut (8478 ft.) is reached by a path from Maloja Pass, leading past Cavloccio Lake to the foot of the Forno Glacier. The route across the glacier to the hut, which lies on the east bank and about 200 feet above the glacier itself, is well marked. The usual time is about 3½ hours from Maloja. There are many small climbs on the ridge just behind the hut to the east, but perhaps the most interesting are Cima del Largo, Piz Bacone, and Piz Casnile to the west, across the glacier.

The Albigna Hut (7008 ft.), also 3½ hours from Vicosoprano, is reached by a path leading upward through the forest. It is headquarters for ascents in the Sciora Group and other peaks around the head of the Albigna Glacier. Capanna Sciora (7051 ft.) is reached in 3½ hours from Promontogno, the village on the main road near Bondo.

We had driven from St. Moritz through Silvaplana and Maloja, through Maloja Pass to the quaint village of Bondo. The town is off the highway and only three miles from the Italian frontier. We camped for the night across the mountain stream from the village. Driving through streets just the width of the car, we crossed the stream on a bridge the same width. After a supper of our own cooking we enjoyed a comfortable night. Karl Lugmaier, my Austrian climbing companion, and I


BREGAGLIA
BASED ON TOPOGRAPHISCHER ATLAS DER SCHWEIZ
FRONTIER
OTHER RIDGES
ROAD
PATH
PEAK
HUT
ROUTES
LAKE OF SILS
MALOJA PASS
CAVLOCCIO LAKE
BREGAGLIA VALLEY
VICOSOPRANO
CIMA DEL LARGO
PIZ BACONE
PIZ CASNILE
FORNO HUT
PROMONTOGNO
BOWDO
ALBIGNA HUT
SCIORA HUT
SCIORA DI FUORI
PIPDA
PASSO DI SCIORA
SCIORA DI DENTRO
SWITZERLAND
CIMA DI CASTELLO
MONTE SISSONE
PIZ BADILE
ITALY
PASSO DI BONDO
BADILE HUT
M. O'B. Underhill

got up while it was still quite dark and cooked our breakfast, leaving my wife asleep. We then made up our packs, taking quite a little food with us, and started up the path to the Capanna Sciora just as light was streaking in from the east.

The path was almost a road to a meadow about two hours' time from the car. From here not much trail was in evidence as avalanche snows had covered it for some distance. A sign finally directed us upward beside a swift-flowing stream. From here a steep, rugged trail led to the climbing hut another hour distant, at an elevation of 7057 feet.

We left most of our food at the hut and continued on past the rocks and moraines above the glacier that descends from Passo di Bondo, south of the Sciora Group of peaks. The path was well covered with snow, as it was July 28th of a very heavy snowfall year, and it formed an excellent highway up steep snow slopes. Just below the pass we turned left to a high point on the granite ridge. We continued along this south ridge for a long way, passing over several gendarmes, to the summit of Sciora di Dentro, my first Swiss summit. The elevation was 10,752 feet. An immense snowy peak, Disgrazia, was visible to the southeast. Far to the northeast the high peaks of the Bernina Group were apparent. Close at hand were the many granite spires of the Gregaglia, particularly that of Piz Badile.

On our return we took a short cut above a snow basin and found thin snow on very steep rocks. We were soon below the Pass and descending the snow slopes to the Sciora Hut. Here we found a model of compact efficiency. It was built of granite blocks in 1947 by the Zurich section of the Swiss Alpine Club. The interior was finished in unstained polished larch. It was beautiful and clean. As you came in from the outside, a rack for your ice-axe was the first thing you noted. Next to this was a shelf with hut shoes, inviting you to take off your heavy climbing boots and leave them in this entrance way on another rack. Inside the main room the tables and benches shone brightly. About 24 rectangular wicker baskets were neatly stored on shelves. These were for the food, one basket for each party. The sleeping rooms upstairs were beautifully clean. There were mattresses and pillows with blankets for each person. All slept to-

gether, men and women, as they have no dividing line. We praised the hut keeper, Uli Gantenbein, of Silvaplana, for his well-kept hut.

It was possible to get full meals, or just enough food to supplement your own. Since all supplies must be backpacked, it is a kindness for each person to bring as much food as he conveniently can. Almost everyone had enough food for about half his needs. Gantenbein's soup was especially delicious.

Next morning Karl and I left early for the climb of Sciora di Fuori. My wife, Lynda, had arrived late the night before. We ascended a long steep snow slope that eventually led us into a steep couloir, which placed us on the north ridge. We then followed the narrow ridge of granite blocks to the summit, 10,380 feet in elevation. Soon we saw other climbers coming toward us along the ridge from Punta Pioda di Sciora, the next peak to the south. In a short time we had an international party on the summit of our peak, two Italians, two Austrians, one Swiss, and one American. From the summit we saw Cassin, one of Italy's finest guides, and a companion, several hundred feet below, attempting a route that had never been made since a huge piece of granite had fallen some years before. This route was climbed for the first time later the same summer. Our descent was a duplication of our ascent and we were soon enjoying Gantenbein's soup at the hut.

I rested the next day, but indefatigable Karl made a solo climb of Punta Pioda di Sciora, 10,623 feet in elevation. It is a climb quite a bit more difficult than Sciora di Fuori. There is one slab that is very exposed and quite difficult.

Later in the summer Miriam O'Brien Underhill made the ascent of Ago di Sciora, between Punta Pioda and Sciora di Dentro, 10,502 feet in elevation. Here is her description of the climb:

> Leaving the Albigna Hut, 7008 feet, we walked south up the glacier Vedretta del Albigna, with the Sciora Group ahead and to our right (west). As we rounded a rock buttress of the Pioda di Sciora, the Ago came into sight, a slender rock needle of striking appearance. After crossing a small glacier at its foot, we attacked the rocks not directly under the Ago but somewhat to the south. Diagonaling back to the north over easy rocks, we reached the Bochetta, a narrow notch at the south base of the final spire of the Ago.

Here the climbing becomes more difficult. About midway up, some large blocks have fallen out, leaving this pitch more tricky than it used to be. Here we found two narrow vertical cracks. Climbing up the left crack, we then traversed to the other crack, a passage of only six feet, but delicate. The top is airy. The Ago can also be climbed from the north, which looked easier to me from the top.

Now came our best endeavor of our Bregaglia climbs, the Piz Badile, no doubt one of the best known and most interesting climbs in the area. We left the hut early and crossed the deep canyon between us and our objective, the peak. A long, wide gully led us to the base of the north edge, or *kante*. Two swiss climbers preceded us by an hour and we could see them farther up the *kante*. The climbing is difficult almost the entire distance with little chance for relaxing utmost care. The first piton pitch was a very smooth and exposed slab, sloping down steeply from the edge. To advance upward we had to keep our hands on the edge with our rubber-soled boots clinging to the smooth granite by friction. Three pitons were in place and were used for safety.

Some distance above this slab we encountered a wide, open exposed gully with two choices of route. Karl took the upper route but advised me to take the lower, which had one piton in place for safety. This gully led to a sharp ridge with an exposed traverse around the head of the gully. From here a very tricky overhang required a pull-up above the gully below. Again a piton in place was an aid.

From this point on the climbing was nearly all on the very edge of the exceedingly steep ridge. There were many but small ledges for handholds and footholds. When we were two hours below the summit Karl followed steps in the snow toward the left of the ridge and along a ledge. They had been made by our two Swiss predecessors. We were soon on the terrifically exposed north face with very difficult climbing above us. Karl knew that we were wrong and we carefully retraced our steps. After a short traverse we followed a gully up to the ridge and were once more on the correct route.

From here with steep climbing we were soon on the summit. The elevation was 10,863 feet. It was now 7:00 P.M. We did not want to descend the steep *kante* we had just climbed. Instead we went down the opposite or Italian face. Two rappels were used;

otherwise we climbed down. Just at dark we were at the base of the last rocky cliff and found snow. Far off in the distance we made out a dim light, a lantern hung outside the tiny Italian hut, Rifugio Luigi Gianetti, by the hut keeper at the suggestion of our two Swiss Piz Badile climbers. This hut is often called the Badile Hut.

Another hour of snow and rock hopping after dark brought us to the hut. Neither the hut keeper nor his wife could speak German or English, and Karl and I could speak no Italian. But food and a bed are international, with speech unnecessary. We were soon eating soup, bread and meat, and sleeping the sleep of tired climbers.

After breakfast next morning we joined our two Swiss climbers as far as Passo di Bondo, from where they went off to climb Sciora di Fuori which we had climbed five days before. We descended to the Sciora Hut, joined my wife, gathered up our belongings, and descended to our car at Bondo.

The climbs in this area are excellent in themselves, the peaks are lower in elevation and the climbs shorter than those of the more famous Swiss mountains of the Bernese Oberland or the Zermatt region. They lie on the southern slope of the Alps where there are more chances of good weather. All these considerations combine to make this a fine region for climbing when the higher peaks may be blocked off by bad weather. Our five days in late July saw no storm at all, except a hailstorm one evening that lasted about a half hour.

Top—SCIORA PEAKS — *Photo, D. Woods*

Bottom—CAPANNA SCIORA — *Photo, D. Woods*

IN SOO PEAK
April 1954
Photo, F. M. Golomb

IN SOO PEAK
April 1954
at Tobang-San
Photo, F. M. Golomb

Korean Climbing

CAPT. FREDERICK M. GOLOMB and THOMAS A. MUTCH

KOREA is a country few mountaineers visit by choice, but in recent years many people, climbers and others, have found themselves in this land of rice paddies, crowded towns, and mountains. For the most part the mountains are ragged hills, extending in roughly parallel ridges which culminate in numerous rocky peaks possessing a real but desolate beauty. Unfortunately they leave bitter memories for most Americans who know them only as battlegrounds whose flanks and ridges were hard won homes of cold, hostile discomfort. When the hostilities ceased and boredom set in, few looked to the hills with pleasure and anyone who would voluntarily go out among them was regarded with unmasked incredulity.

In our pursuit of recreational climbing several unusual problems had to be overcome. Independent pleasure trips, such as these, are frowned upon; specialized equipment—even ropes—is hard to come by. Then there is the unfamiliar hazard of the land mines. During the fighting they were buried by the hundreds along the ridges and slopes. Many still remain undetected and dangerous.

Of all the mountains south of the 38th Parallel one group stands out as a particular mountaineering challenge. These mountains, known as Tobang-San, are located just north of Seoul. Most prominent among them is In Soo peak, which has probably been noticed by most Americans who have been to Korea. In general, the cliff faces we climbed in Korea and the surrounding mountains were composed of crumbling rock. By

contrast the last 500 feet of this peak appear to be a solid volcanic core, rising almost vertically on three sides with a single steep ridge on the fourth, broken only by vertical cracks.

Our curiosity about this mountain was early aroused, but it was not until late December 1953 that we made our first reconnaissance of the peak. At that time deep snow and glazed rock made the exploration unsuccessful. In the spring we made two more visits, but no obvious route could be found, and our desire to climb the peak accordingly increased. Finally, in mid-May, a truly determined attack was planned. Enlisting the help of the air force, we were flown to a nearby field and got off to an early morning start. By now we were well known to the native children living near the mountain, who would climb into our jeep in prodigious numbers. We actually carried eleven of them, besides ourselves and our driver, right up to the base of the mountain, where they insisted upon becoming our porters and carried our modest gear up the path. While leisurely following them, we reflected upon the grandeur of this expedition which included air support, a chauffeured vehicle, and native porters.

The path led through a lush forest and then grew more devious as it wound up to a col which separated our mountain from a neighboring peak. Here we found a Shinto shrine with a decaying wooden Buddha and a family living in the high temple with no apparent source of livelihood.

Facing the tower which again loomed over us, devoid of any obvious route, we luckily came upon a group of engineering students from the University of Seoul, who belonged to the Chosun Alpine Club. They told us that the mountain had been climbed in 1946 by a member of their Club and invited us to follow them in their ascent. These five young men had a single 120-foot rope among them as their sole equipment. The leader would proceed up a pitch and successively bring his companions up to him until they all stood on the same narrow ledge before moving up the next pitch. This road block ahead of us allowed us to climb leisurely and pointed out each step of the way. Their lack of hardware was made up by heavy iron rings which had been drilled and cemented into the rock at appropriate intervals.

The first pitch of the climb was a narrow 15-foot chimney,

followed by a wide, inverted corner. This extremely awkward pitch was possible largely because of the rough texture of the rock, permitting maximum use of friction in the absence of any true holds. Above this was a detached slab, which the small, wiry, and very agile Koreans "chimneyed up," and which was too narrow for us, so we took it as a vertical lay back. One of the final pitches required direct aid. The Korean technique was for the leader to lasso a projecting rock and then climb up the rope. We graciously accepted this assistance when, in turn, we reached the stiff pitch. The angle lessened above this point and the subsequent stretches were not difficult.

Finally emerging on the top of the huge dome, we could look south to Seoul and west to the Yellow Sea while the rugged ridges extended as far as the eye could see, north and east. As we reflect upon the problems and pleasures of climbing in Korea, our most vivid memories are less associated with the familiar technical difficulties of the climbing than with the unique experiences connected with them.

A Fight for Life on Monte Rosa

GUY M. EVERETT

MOUNTAINEERING is full of light and air. The early call, the quick breakfast, and away into the darkness with the flashlight picking a way through the rocks of the terminal moraine. Thus it started for Fritz Lenz and me, leaving the Bétemps hut to climb the Cresta Rey of Monte Rosa. This route is seldom climbed but reportedly offers a fine rock climb to the very top of the Dufourspitze. After we had been plagued by snow and ice in several other areas of the Alps, the thought of a good rock route had much greater appeal than the snow slog up the regular route.

The night before, we had read the scanty details given in the guide book and looked at the drawings. We had been warned to by-pass the smaller ridges coming down from Monte Rosa towards the Grenz Glacier. After traversing the huge moraine, we reached the ice, put on our crampons, and started up the easy glacier. This gradually steepened. We were soon in the Grenz icefall, notable for its huge block-like structures and enormous crevasses. We temporarily lost the route and had to work down an ice cliff, but we were soon able once more to follow the faint footsteps of previous parties. The bridges over the crevasses were solid in the cold morning air and we made good time over the ice. We were now on the upper smoother section of the glacier from where the Lyskamm glowed golden in the morning light. At this time a great ridge made up of several spires was seen extending down from Monte Rosa. We concluded that this ridge, the highest point visible, was our route. It looked like a formid-

able rock problem, but since the guide book had not mentioned any unusual difficulties, we went forward to see. On one side was an overhanging ice slope, which was to be avoided. On the other, boiler-plate slabs of granite led up to the first tower. But first the bergschrund had to be crossed. It was bridged only at one spot by the remains of a sizable snow avalanche. The snow was not well packed and the deep, dark interior on either side was not a pleasant prospect. With a firm belay we crossed safely and made our way to the slabs, which proved most uncompromising. Holds were few, and belay spots were more suggestive than real. Above these slabs the ridge rose steeply. Fritz chose to lead up the left side. Here the rock was twisted into contorted strata, some firm, some loose, and always difficult, with many strata lying vertically rather than horizontally. Several traverses were made in the hope of finding more pleasant strata, but to no avail. We were making fairly good time, however, and had climbed about 1000 feet of rock when we reached a narrow couloir which from below we could see led to a break in the ridge. Here we found an overhang covered with verglas. Fritz placed a piton and snap link and I belayed him while he solved this tricky problem. Above, the couloir sloped inward and then rose steeply and I could no longer see the climb. The rope slowly went out as Fritz progressed upward. Almost the full length of the rope was out when I heard a faint scuffle above. Almost immediately, and to my astonished horror, Fritz shot out from the overhang and plunged down the couloir out of sight. A moment later the jerk on the rope came. I was shot up against the rocks with great force. Blackness and silence engulfed the scene. When I came to, I lay against a big boulder, splattered with blood. One of my eyes was swollen and a cut at the side was bleeding; a deep scalp cut also added to the trickle down the side of my face. My right hand was swollen and cut, but fortunately the fingers all worked without pain.

Upon the return of consciousness I began to consider the situation. Surely Fritz must be dead from such a fall, and the chances of getting down 1000 feet of formidable rocks, plus the negotiation of the badly crevassed icefall alone, were very small indeed. "Everett, you've had it," I thought, but one must at least fight.

Slowly I got to my feet. Immediately I was jerked towards the carabiner by Fritz's weight on the rope. My ribs ached. I was slowly drawn towards the carabiner and to an awkward position against the rocks. Cut the rope? No, that was out because Fritz might possibly be alive. I finally thought out a way to tie the rope and cut myself loose. The task seemed impossible, especially since I was being held awkwardly on tiptoe against the rocks by the rope. I had just succeeded in untying the first knot when I heard Fritz yell, "What happened? Are you all right?" Fritz was alive! "Fritz, are you all right? Can you move?" "Yes. Pull up the rope and I'll climb up." Slowly, as I pulled on the rope, Fritz climbed up the couloir to the ledge. His clothes were torn and there was a small bump on his forehead but no bloody wounds. He sat down. His pallor evidenced the shock he had sustained. Also, he was mentally confused. By now our position was all too clear. It was obvious that Fritz was still able to climb and had not lost his technical skill, but the problem of finding the route and keeping the effort sustained was going to be up to me. Getting down 1000 feet of difficult rocks and crossing snow-covered, crevassed glaciers and icefalls were our only possible means of escape. By now the wind was coming in roaring gusts, ice cold and carrying bits of stinging ice. After surveying the situation for a few minutes, I told Fritz that our only chance of survival was a successful descent of the rocks, since the wind would freeze us into two battered gendarmes within a very short time.

In our condition the direct descent of the upper cliffs was out of the question. The only feasible route appeared down a 60° ice couloir. We rappelled down to the edge of this ice slope, which plunged down to end above another section of cliffs. Here we put on our crampons, a formidable undertaking in itself. The damnable wind raged and battered us. Fritz had lost his ice-axe in the fall. Fortunately, he is an expert ice craftsman and has had experience in using his piton hammer as an additional axe on steep ice. I started down the ice slope facing in. The thin snow cover was firm and the crampons held well. The ice-axe head could not be sunk deep enough to give any feeling of security. After descending a rope length to a small ice ledge and cutting out steps for a belay spot, Fritz began to descend. With a

technique both perfect yet automatic he descended slowly towards me. By now the shock was wearing off and the pain from his swollen ankles was becoming unbearable. At times he swayed, but we had to go on. Several more rope lengths and we were on a wide ledge. Fritz slumped down in a half faint and asked for food and water. I opened the pack and found half a chocolate bar and a half-filled canteen. The ankle pain was now really affecting him. Fortunately, I had morphine tablets with me. I gave him one.

The wind was roaring down the couloir, driving the fine particles of ice into our faces. We must go on for we were still high up on the rocks with the glacier far below. I realized the slabs to our left would be a dangerous if not impossible route for descent, and so I started down to the right, following another ice couloir for a few hundred feet. We were now forced to take to the rocks. Our condition, our position, and the wind made it impossible to remove our crampons. The rock was in steep, almost vertical folds with no breaks or obvious lines of weakness in sight. Climbing down on small ledges, we descended another hundred feet. Since Fritz was again near collapse, we sat on a small ledge. The pack was removed and opened for a drink of water. In the shuffle the rope picked it up, and to our horror we watched it go bounding off into space. It contained several extra pitons and carabiners. Fortunately, Fritz had five pitons and three carabiners; I had two carabiners and a rope sling. With at least 400 feet to the glacier and the holds becoming thinner, it was obvious we would need these and perhaps even then be hung up. I searched out every possible section for routes to save on precious ironware, but soon a narrow exposed crack was more than Fritz could tackle in his condition. He placed one piton, which didn't set. He placed another. The ping told us it was firm. But pound as he would, the other piton would not loosen. The wind roared and we could not stop, so we had to leave that precious iron spike behind. This left us three pitons and a rope sling.

Exhausted and feeling faint, Fritz swayed, clinging to the small holds. We traversed downward and were soon stopped by a sheer face. A crack here made a piton possible, so we reluctantly

used one and descended to a ledge 50 feet below. This was the critical point. From here the route had to be determined. It was the point of no return. I studied the rock face and the wild glacier below. Yes, it would go. "Fritz," I yelled, "we're going to make it!" Two more piton rappels, a traverse to the only boulder on the face, and a sling rappel would see us down. At least it looked possible if some appropriate cracks could be found. Fritz was somewhat wobbly, but with dogged determination he set the pitons till they rang. The last one didn't give this assuring sound, but there was no alternative. We descended with care and as smoothly as possible. A short traverse brought us to that much needed rock. I took off my rappel sling, placed it over the rock, and threaded our rope. I could see the ends dangling at the very edge of the glacier, which was a shambles of small and large crevasses presenting a ticklish problem at the end of the rappel. I looked around and could see no route we could have climbed down. It was indeed the edge of survival.

On reaching the glacier, I had to find a spot to stand while Fritz rappelled down. Near the rocks the glacier was a mass of gaping holes and the snow soft and rotten. Probing with my axe, I finally round a firm spot and waited for Fritz. With great effort he descended and landed in a small crevasse but was able to extricate himself.

We now pulled on the rope, watching the end travel up. It must not get caught! But as the end came over, it dropped into a small crack and stuck. Fortunately, a few motions loosened it and with a hiss it fell to our feet. Fritz was exceedingly exhausted from this long, sustained effort and sank down in the snow. "Fritz," I said, "we're going to live but we must go on. There's still a hell of a lot of glacier to get down before we're safe, and a night on the glacier in our condition would be a terrible business." We realized that his ankles would grow continually worse and that to keep going was our only possible course. We roped up and started down the glacier. Here the wind that had battered us was no longer important but a powerful sun had worked on the snow all day and had softened the bridges over the crevasses. We fell into endless small ones, and routes used in the morning led to the edge of some enormous ones, now open. A new route had to be threaded through these, by careful probing of edges and jumping to clear soft edges. Fortunately, we avoided the big ones, but the small ones made life unpleasant, and Fritz, who was heavier, seemed to open all those I didn't find. It was a slow, exhausting business. The grandeur of the Grenz icefall and its great ice blocks now seemed a huge trap waiting to drop us into its icy depths. This was the last serious problem. It was now six o'clock and we were on the lower glacier. Here there were still soft snow and small crevasses, but we could make much better time.

Finally, the great terminal moraine loomed into view and, to get off the snow, we headed for it. The sun was now setting and only an hour of daylight remained. The boulder-hopping was a slow and painful problem for Fritz. Slowly we went along the ice, looking for cairns to lead the way. We had taken the moraine too soon, and when darkness came at 9:00 P.M., we were still stumbling along through the rocks, our flashlight making it possible to continue. At 10:00 we reached a point where far be-

low two other lights were flashed up at us. The route was still difficult to find in the great boulder-strewn moraine. Finally, we reached the path that leads along the spine of the moraine down to the Bétemps Hut. Now it was safe to leave Fritz and I turned down towards the hut for help. The two lights came up the trail toward me. Voices spoke only French. I held my flashlight up to my bloody face. "Accident," I said, pointing up the path, and went on towards the hut. The hut keeper's daughter looked at my blood-covered clothes and face and went to get her mother. Fritz, with the two good Samaritans accompanying him, arrived shortly in a state of collapse. It was after 11:00 P.M. and we had taken 12 hours to get down. After a bowl of hot soup and some bandaging, we went to bed.

It had been a close call. Next day I had a very severe chest cold and went on to Zermatt, where I gave the tourists the rare sight of a very black eye. Three husky Austrians, friends of Fritz, carried him in a rope seat across the glacier from the hut to the path—a Herculean feat. With grim determination he walked unassisted along the trail to the train and then up to the hospital in Zermatt. X-ray revealed a broken ankle. Fortunately in his great fall he had landed on his back in snow between the narrow, jagged walls of the couloir.

Now it's all past and we're looking at the peaks again. Mountaineering is full of light and air.

Post War Mountain Training

LT. COLONEL ERWIN G. NILSSON

At the close of World War II the United States Army had a large number of soldiers highly skilled and experienced in mountain warfare. These people were largely grouped in the 10th Mountain Division, although the skill was widely scattered throughout the Army, both as a result of specialized mountain training received by certain units and practical experience gained by others during the course of World War II. A number of our divisions during the War received brief but intensive periods of mountain warfare training in the West Virginia training area, prior to shipment overseas. Units committed to action in North Africa, Italy, New Guinea, and many other places, learned their skills in the school of hard knocks, although as the War progressed, training centers were set up in the different theaters. With demobilization in 1945, trained soldiers carried a large portion of this knowledge and skill back with them to civilian life; however, a trained cadre was retained at Camp Carson, Colorado.

To some extent, military mountain training has followed the financial fortunes of the Army, which naturally dictate the troop structure and its training requirements. From 1945 to 1949 there was active mountain training and a considerable amount of work was done. During the economy period of 1949-1950, until Korea, specialized training went into a decline and only a small organization composed of a few military and civilian personnel was retained at Camp Carson.

With the organization of the Mountain and Cold Weather

Training Command in the summer of 1951, renewed emphasis has been given to mountain and cold-weather warfare training. This was a natural result of an enlarged Army and the violent experiences of the first nine months of the Korean War. The commanding officer of the Mountain and Cold Weather Training Command, for three years following its organization, was Colonel Warren S. Shelor; at present Lt. Col. Donald J. Woolley is in command. Both of these officers became interested in mountain warfare operations and mountaineering in general as a result of service with the 10th Mountain Division during World War II.

The Command employs a number of civilian instructors, picked from the best available talent in the mountain and cold-weather fields. All but two of the civilian instructors had World War II military experience and several have been employed continuously since 1946 at this type of work. These people constitute a continuing skill retained by the Command which would otherwise be lost by the continual rotation of military personnel.

The Command is organized to conduct three different but related activities. Its primary mission is training. Other responsibilities concern review and development of mountain-warfare literature, including tactics, techniques, doctrine and procedures; study and development of appropriate organizational structure and equipment for mountain operation.

During the past several years the Command has assisted in the training and preparation of troops for the annual winter maneuvers in the Camp Drum, New York, area. An intensive training program was carried on during the spring and summer of 1952 to provide a limited number of mountain-trained infantry replacements for overseas commands, the bulk of whom were assigned to our units in Austria and a limited number to the Far East Command.

During the past year mountain and cold-weather training centers have been established in both Japan and the U.S. Zone of Austria, to provide training facilities for our combat units stationed in those areas. Lt. Colonel Edward H. Link, a club member, organized and has been in command of the Far East

Center. Lt. Colonel John H. Hay, a veteran of the 10th Mountain Division, organized the U.S. Forces, Austria, Center at Saalfelden.

With the establishment of these overseas centers, the Mountain and Cold Weather Training Command was called upon to provide a limited number of professionally qualified mountain operations instructors. This responsibility is fulfilled in part by the normal military rotation of soldiers and officers from the Command as they complete their Continental U.S. tour and are assigned overseas. A limited number of Austrian Nationals are employed by the USFA Center. In January 1953, a seven-week mountain and cold-weather operations instructor course was established at Camp Carson, for a limited number of specially selected overseas replacements. The purpose of this course is to supply to certain overseas commanders a continuing stream of specially trained officers and enlisted personnel to fill the instructor spaces at the various overseas training centers.

During the summer season, the course includes various aspects of summer mountaineering, survival, orientation, and cross-country movement, together with training in different means of supply and evacuation, including animal, helicopter, fixed-wing aircraft, and human pack. The first four weeks of the course are conducted in the Camp Carson area and the final three weeks in the Wind River Range, Wyoming. The latter training provides practical experience in operations in glaciated mountainous areas and an indoctrination into life in a primitive area. The Wind River area has proven an ideal training area for this type of activity.

During the winter months, training includes survival, over-snow movement, supply and evacuation, and use of specialized winter equipment. This training is conducted in the Camp Hale area of central Colorado. The winter training stresses extended periods of bivouac living and cross-country movement to develop hardness and an ability for sustained cold-weather field operations. To provide a completely trained mountain warfare expert, aside from the natural ability required, attendance at both the summer and winter training courses is necessary. Throughout both sessions, emphasis is placed on small-

unit infantry tactics, the development of instructor capabilities, austere field living, and physical and mental toughness—the latter so necessary for successful combat against a fanatical and ruthless enemy. Trainees selected for this course are carefully screened and limited to infantry, artillery, and engineer overseas replacements. This program will eventually provide the professional Army with a substantial cadre of skilled mountain warfare experts and promises to increase materially our capability in mountain operations by providing an increasing pool of qualified instructors.

The Arctic Indoctrination School, organized in the winter of 1948-1949 by Commanding General, U.S. Army Alaska, located at Big Delta, Alaska, provides mountain and arctic indoctrination for selected personnel from U.S. Army, Alaska, and various commands within the United States. There is a continual interchange of personnel between the Command at Camp Carson and Arctic Indoctrination School. This salutary arrangement provides personnel for the Continental Command who possess wide and varied backgrounds and supplies the Army Arctic Indoctrination School with technically and professionally qualified mountaineering instructors.

From January to March 1954 the major project of the Mountain and Cold Weather Training Command was Exercise SKI JUMP, an RCT-scale winter training maneuver conducted in the Camp Hale, Colorado, area. Major units were a Regimental Combat Team from the 11th Airborne Division, the Mountain and Cold Weather Training Command, the 4th FA Battalion (Pack) and the 35th QM Pack Company, together with supporting logistical troops. This exercise consisted of some nine weeks of individual and small-unit training, followed by a short exercise of five days duration, stressing offensive and defensive operations under terrain and weather conditions found in the Camp Hale area at that season. The training period was divided into a four-week cadre training phase for specially selected personnel and a five-week period of small-unit training. The exercise stressed cross-country movement, extended field bivouacs, the use of special tentage and equipment, and survival and physical hardening. During May-June 1954 six members of the Arctic

Indoctrination School played a vital role in the rescue of George Argus from Mt. McKinley.

A large-scale Airborne Arctic Exercise was conducted in Alaska, January through February 1955. This exercise involved the 503d Abn Infantry Regiment from Ft. Campbell, Kentucky, and various Alaskan units including elements of the 4th Infantry and the 53d Infantry Regiments. Also, this past winter, January through March 1955, elements of the 8th Infantry Division and the Mountain & Cold Weather Training Command engaged in winter maneuvers in the Camp Hale area.

Mountain training in the U. S. Army is in an excellent state; it is on a thorough, progressive, and practical basis. It stresses those things necessary for successful operations in mountainous areas and fits with the U. S. concept of the employment of an infantry division. With proper training and minor modifications of equipment and organization, our infantry divisions are capable of fighting anywhere, at any time, against any enemy.

Mention should be made of the excellent and effective work done by the "Committee on Liaison with the Armed Forces" and particularly the consideration given to the recommendations and suggestions of Mr. John C. Case and Dr. Robert H. Bates. The work and effort of this Committee has received recognition at all levels in the Army and has contributed immeasurably to an understanding of the problems of establishing and maintaining an efficient and worthwhile mountain-training program.

Tests on Roped Climbing Techniques

WILLIAM E. SIRI

THE INSTANT a rope is uncoiled, mountaineering becomes, in part, an engineering project. Yet so far as the engineering element is concerned, it is often more an art than a science—a choice of techniques by intuition rather than by objective investigation. Perhaps the single most important innovation in climbing technique developed from a sound rational basis is the now generally practiced "dynamic belay," so ably studied by Leonard and Wexler[1] and by Wexler.[2] While sound in principle, the dynamic belay can still be misused in practice. There still remains not only selection of the best belay methods, but also a need for better understanding of the mechanics generally involved in climbing: the maximum forces a belayer can sustain, frictional forces on the rope through carabiners and over rock, forces on rappels, and the strength of pitons.

In an effort to answer some of these questions, the author undertook, with the cooperation of the Sierra Club, a program of tests on the mechanics of various aspects of roped climbing. The tests were also aided by the use of a high-capacity dynamometer lent by W. C. Dillon and Company, Los Angeles, and by the assistance of Mr. Clarence Rose of the Rose Manufacturing Company, Denver, Colorado. Space does not permit a detailed account of the tests nor a justification of the conclusions, but a few of the observations are presented here for consideration by

[1] Leonard, R. M., and Wexler, A., "Belaying the Leader," *Sierra Club Bull.*, 31 (1946), 68.
[2] Wexler, A., "The Theory of Belaying," *A. A. J.*, VII (1950), 379.

safety and climbing committees. A full description of the tests is now in press and will appear in the *Sierra Club Bulletin.*

Belay stances fall naturally into four main categories: the sitting-hip; standing-hip; standing-seat; and the shoulder belay. Each position and its many minor variations was tested at climbing sites with scores of belayers and always to the point where the belay yielded. The maximum tension that could be held was limited by failure (complete loss of rope control), collapse (partial loss of control), rope slippage, or pain.

Sitting belays, with the climbing rope passing around the waist, were by far the most secure positions and rarely yielded in failure. The average yield tension was 340 pounds, but the yield point ranged from 200 to 550 pounds, with the highest tension held only if the legs were straight and firmly braced. A sitting belay from a ledge without foot support is highly effective provided the rope runs between the thighs and immediately over the rock edge. The importance of an anchor when belaying the leader is evident, in view of the average yield tension of 340 pounds—only twice a man's weight.

The standing-hip belay yielded usually in complete failure at an average tension of about 225 pounds. In our opinion it is a belay stance that should be used only when the sitting belay is impossible.

The standing-seat (slingshot) belay, in which the rope passes around the buttocks and upward through a carabiner, is often essential in climbs where pitons are used, but it is the weakest belay position tested. Belayers were partially dislodged by tensions ranging from only 50 to about 150 pounds and consequently could arrest falls only if anchored with a taut rope. This position is helped considerably, however, by an anchor and by carabiner and rock friction which absorb much of the energy in arresting a fall.

The standing-shoulder belay held tension varying from less than 200 pounds to slightly more than 300 pounds, but every belay tested yielded in failure with complete loss of rope control and the anchor was of no direct aid beyond safeguarding the belayer. It is by all odds the least secure of belays and its use cannot be recommended under any circumstances.

Carabiner and rock friction are important aids to the belayer

in arresting a fall, for they absorb a large fraction of the energy and greatly reduce the restraining tension that is needed. For a rope making an angle of 45° through a carabiner, the tension is reduced by ¼; at 90° it is reduced by ½; and at 180° the reduction is about ⅔. Rock friction is more variable, but, in general, rope tension is reduced by ¼ to ⅓ where the rope turns an angle of 45° over a ledge, while at 90° it is reduced ½ to ⅔.

On leads where substantial carabiner and rock friction are encountered, the belayer must exercise considerable discretion in arresting a fall since the tension felt by the falling leader—and the force on the highest piton—may easily exceed 10 times the restraining tension applied by the belayer. There is, consequently, a very real danger in extreme cases of seriously injuring a falling leader by decelerating him at too high a rate and of pulling pitons if the belayer applies too great a restraining tension.

At the other extreme, which exists when no pitons are placed, it would seem desirable for the belayer to apply the greatest restraining tension his stance will permit. It is unlikely that the belayer, aided only by moderate rock friction, can seriously injure the falling climber with excessive rope tension, and it is then better to arrest the fall as quickly as conditions permit to minimize the danger of striking rock enroute.

The leader also bears a responsibility in safeguarding himself, the rope, and his belayer. If the maximum safe deceleration in arresting a fall is set at 6 gravities, which is possible only when pitons are used, then the leader should never advance more than a distance ¾ (L-H) beyond his last piton, where L is the total rope length and H is the rope length from belayer to the highest piton. This leaves only enough rope for the belayer to arrest the fall at maximum deceleration. On the other hand, for 4th class leads (no pitons) the advance should be limited to about 70 feet beyond the belayer since the belay, on the average, cannot hold more than about 600 pounds' tension even with the help of rock friction.

Belay conditions on ice and snow are far less favorable than on rock. The belayer usually has little or no aid from frictional forces and his position is often insecure. The diffculties are

further compounded by the more frequent need of all climbers on a rope moving simultaneously in hazardous areas, which means setting an improvised belay while the fall is in progress. Thus far, a wholly satisfactory belay procedure for snow climbing does not appear to have been developed. Perhaps none approaching the security of a belay on rock is possible, but further study is urgently needed.

Measurements on rappel systems revealed that rope tension rarely exceeds the body weight by more than 75 pounds. Under normal conditions on a vertical face, the tension more often varied from something less than the body weight to a few pounds greater than the weight.

Conrad Kain

ALBERT H. MacCARTHY

ONCE AGAIN I have thoroughly enjoyed reading Conrad Kain's *Where the Clouds Can Go* (2nd edition), especially those parts covering his life and activities in Western Canada during the days of exploration and climbing in which I took part, accompanied by Mrs. MacCarthy who originally introduced me to the fascinating sport of climbing.

My first intimate acquaintance with Conrad was in 1913 when, en route by train to Mt. Robson, I was much pleased to learn that Mr. Arthur O. Wheeler, President of the Canadian Alpine Club, had selected me to join Colonel W. W. Foster on Conrad's detail for the first assault on Mt. Robson by the northeast route. Mr. A. L. Mumm of England and his guide, Interbinnen, had made attempts here but were driven back because of the great danger of avalanches from the mountain's northeast shoulder. Interbinnen himself told Conrad, "I never before saw death so near."

Our very interesting and strenuous first ascent and traverse of Robson accomplished Conrad's long-burning desire to conquer his "King of the Rockies" and a second climb of Robson with him at the end of camp cemented a feeling of confidence and companionship between us that endured for years.

Between climbing seasons, we worked together developing our home ranch, "Karmax," on the bench lands above Wilmer, British Columbia, at the headwaters of the Columbia River. This intimate association afforded us time for many long discussions about the social and economic problems that were much on Conrad's mind. However, the two subjects that inter-

ested him most were mountaineering and the beauties of nature, the latter seemingly ever present in his thoughts.

As his book indicates, after leaving his home in Austria he began a life not unlike that of a vagabond student, ever grasping for a better understanding of the world, its civilizations and its philosophies. His brain was never idle when there was an opportunity to learn interesting facts about the country in which he was traveling, especially about its mountainous areas, its wild life, and the people with whom he came in contact. His interest was never casual; when facts were learned, he stored them away for future use. Undoubtedly it was this training of his memory that made it possible for him, unerringly to remember and to retrace a route of ascent on a difficult mountain side, even in a blizzard such as was encountered on our descent after the third climb of Mt. Robson in 1913. Schauffelberger, Darling, and I confessed that, in the stinging sleet blast, we could hardly see anything, much less follow an unblazed trail.

Conrad and I made many climbs together in the lower Purcells, which were virtually in our back yard. Between the lines of his calm recitals about them, I can remember many very difficult and sometimes dangerous stretches of ascent or descent that the average climber would have stressed in graphic detail to impress the reader, but not Conrad. He well knew and frequently spoke of the lurking dangers always involved in expeditions into the mountains and took it for granted that the intelligent reader would understand that the real sport and satisfaction in reaching the summit of a mountain is measured by the difficulties and dangers of its ascent. Otherwise, as Conrad would say, "Why not go for a 'shtroll' in the park?"

I was amused by his reference to one extremely difficult and hazardous descent we once made of Monument Peak in the virgin territory of the Purcells. When, some time later, he pointed out our route of descent to an old prospector, the man gazed at it for a while and then retorted, "Say, Mister, you're either a fool or a doggone liar!" I must confess to the first, but we simply had to get back that night to allay the fears of the members of our party left in camp. In any event, I am sure Conrad never exaggerated the difficulties he overcame on any mountain.

Occasionally he was criticized for being stubborn, but I felt

that when he disagreed it was firmness in his belief rather than stubborness. His life had been filled with many varied experiences which produced fixed ideas that endured until further observation forced a change in his views. This character trait was shown in his philosophy concerning "the free man," about whom he frequently spoke. Conrad always maintained that only the man who worked for himself was free, and it may have been partly due to this feeling that he left my employ at "Karmax."

He then married our fine, efficient maid, Hetta Ferreira, bought a small truck farm in Wilmer, and with Hetta established a home. This step pleased me, for I felt it would have a settling influence on his life, which heretofore had seemed without definite purpose. The couple were well suited to each other and worked hard to develop their place, Hetta carrying on the work when, during the winter months, Conrad handled his trapping lines back in the mountains. We saw little of either of them for many months until I had a wire from Mr. Wheeler, asking that we come on at once with Conrad to join a search party for Dr. and Mrs. Stone, who had left camp to try a first ascent of Mt. Eon near Assiniboine. Fortunately, Conrad was at home and we left next day by train for Banff. This gave me an opportunity for a good long visit to learn how things were going with him.

It was soon evident that both of them had worked terribly hard with the gardening, hunting, and trapping, which caused Conrad again to express himself about the "free man." "The free man," he declared, "is one who has a good, pleasant, and sure job at fair wages, who begins work when the whistle blows in the morning, has time off for lunch, knocks off work when the whistle blows at 4:30 in the afternoon, and is *perfectly free* till the whistle blows again next morning—*he* is the free man!" I expressed surprise at this great change in his views. He smiled and said, "We own our property now, but we never, day or night, are without worries for fear the crops may fail, hunting or trapping may be poor, we may get sick and can't work, and may fail to make payments on our home. While I was working with you and everything was fine, I never thought about those matters that now make slaves of Hetta and me."

Thus, as is usually the case, socialism disappeared when they became owners of the home they had worked so hard to get and prized so highly. With that question settled, Conrad then asked me if I had ever heard what the men in the Valley called me. When I said no, and that I probably would be the last man to hear it, he replied, "Well, don't get mad! They say you're a slave driver." Much amused I asked him what he thought about it. "Well, I'm not sure," he replied, "just what those words mean, but I know you worked in the fields with the men and always set a good pace and worked harder than anybody else in the gang and seemed to like it. But now and then you would say, 'Boys, let's rest a spell.' I never thought a slave driver would act *that* way." Here again he found that the *Herren* in Canada were more democratic than in Europe, and he liked it.

It is regrettable that Conrad did not give any detailed description of his routine methods for dispatching animals caught in his trap lines, for I am sure, with his very friendly care and consideration of all domestic animals, he must have protected the wild animals as much as possible from unnecessary distress. He used to hint to the ladies that, whenever they wore their furs, they should ponder the question whether or not the pleasure and comfort given them is enough to justify the distress endured by the innocent animals involved in their procurement. The description he gives of his various little companions and his clever big dog, Bruno, that shared his quiet, lonely cabin in 1916 during the winter trapping, clearly shows a gentle nature that "longed for the solitude one finds in the Rockies, for the campfire and the carefree life."

Conrad made two trips to New Zealand, one with Herbert O. Frind, with whom he made many first ascents and traverses. It was due to Conrad's outstanding work in the recovery of the body of a local guide from an avalanche on Mt. Cook—February 25, 1914, that he was employed by the New Zealand government to carry on a guide's training school.

In 1926, after Conrad returned to the States to live, I lost touch with him, but was much interested in all I heard about the numerous explorations and climbing trips he made with various members of the Canadian and American Alpine Clubs in the northwest section of Canada. I was especially pleased to

read that, August 10, 1933, his 50th birthday, he thoroughly enjoyed his climb of our old friend, Mt. Louis, with Henry Kingman. However, that climb evidently revealed to him that his many years of heavy climbing and hard work had taken a serious toll of his vitality. This realization, coming only six months after the crushing blow of the loss of his beloved wife, seemed too much for him to bear, although his philosophical habit of mind helped him to feel some consolation in the thought that he had given her many happy years during their life together. I feel sure, after the lapse of a long, lonely year, that he was happy to rejoin her in one of his Elysian flower-bedecked Alpine meadows.

The pages of his book contain many sage words of advice that should be read by all mountaineers interested in safe climbing. To the best of my knowledge, in all his years of heavy climbing Conrad always brought his *Herren* home without serious accident.

The brass plate on Conrad's ice-axe at the American Alpine Club in New York records Mt. Robson 1913, Mt. Louis 1916, and Bugaboo Spire 1916—three first ascents I was privileged to make with him. Remembering them, I put the name of Conrad Kain at the top of the list as the most interesting companion and the best and safest mountain guide in all the years of my climbing.

Various Notes

UNITED STATES

Tetons. During the past few years many important new climbs have been made in the Tetons. Since for one reason or another these have not been published, it seems appropriate to give a summary of them here from south to north.

Northwest Ridge of Buch Mountain, August 11, 1953. Leigh Ortenburger, Mary Sylvander, and Steve Jervis made the first descent of this ridge. The ascent should provide some fine climbing, especially at the three places which require rappels on descent.

North Face of Shadow Peak, July 24, 1950. On this 500-foot face some very difficult climbing was encountered by Bob and Doris Merriam and Leigh Ortenburger, one pitch requiring direct aid.

South Ridge of Nez Perce, July 3, 1954. Bob Merriam, Bill Buckingham, and Ed Clark made their approach from Garnet Canyon up through the col between Nez Perce and Shadow Peak. Once the ridge was reached, it was followed straight to the summit.

Southeast Ridge of Middle Teton, August 15, 1954. Bill Buckingham and Virgil Day, using several pitons for protection, climbed the more easterly of the two south ridges.

Southwest Ridge of Disappointment Peak, July 9, 1952. This spectacular ridge rises 1500 feet from Garnet Canyon. Being "purists," Bob Merriam and Dick Emerson stayed right on the ridge and found the climbing excellent.

West Face of the Exum Ridge of Grand Teton, July 23, 1954. Dick Pownall and Bob Merriam began their climb some 300 feet north of the beginning of Wall Street and angled up the

middle of this wall, reaching the crest of the ridge only a short distance from the summit.

North Face of the East Ridge of Grand Teton, August 9-10, 1953. This variation, made by Harold Gudro and Jim Shane, required a bivouac and apparently was quite difficult since over 50 pitons were used.

Direct North Face of Teewinot, August 24, 1948. Dick Emerson and Pete Owen made the first ascent of this spectacular route. Approximately 150 vertical feet from the summit a unique cave was discovered which forms a passageway from the north to the south face. As Chuck Crush and Graham McNear proved six days later, it is possible to go through this cave and complete the climb by the south face. Emerson and Owen, however, finished their climb on the north side by a remarkable, very exposed lead around an awkward chockstone.

Northwest Ridge of Teewinot, September 7, 1954. John Fonda, Jean Fonda, Don Decker, and Marty Benham followed this long ridge all the way from Cascade Canyon except for a detour in the middle to avoid some smooth sections. The route brings one out right at the summit monolith.

North Ridge of Mt. Owen, July 31, 1951. Previously, Durrance, Coulter, and McLane had climbed the spur leading from Valhalla Canyon to the upper portion of this ridge, but the direct ascent of the entire ridge remained for Dick Emerson and William Clayton to make. It was a long climb—12 hours were required to reach the summit from Cascade Canyon.

South Face of Symmetry Spire, July 3, 1950. Dick Pownall and Leigh Ortenburger completed this new route which lies between the Durrance ridge and the Southwest ridge and is of similar difficulty.

Black Dike of Mt. Moran, August 20, 1949. This unique route, followed by Dick Pownall and Dave Van de Water, goes up the face of the diabase dike so prominent from Jackson Hole. In the upper sections both loose rock and difficult climbing were encountered.

East Ridge of West Horn, June 24, 1953. Fred Ayres and A. E. Creswell made this first ascent. Ayres also made the first and second ascents of this peak by the west ridge. This fine new route was a third ascent.

Pinnacles. Some of the most enjoyable climbing in the Tetons is to be found on the various pinnacles in the range. Only after the efforts of the past summer can it be definitely stated that *all* the pinnacles encircling the Lake of the Crags have been climbed. Fred Ayres, John Oberlin, Peter Robinson, Leigh Ortenburger, Gary Hemming, and others, have all contributed toward this end. *Pinnochio Pinnacle,* the lower of the two pinnacles beneath the north ridge of Middle Teton, was climbed for the first time by Bob Merriam and party in July 1951. The higher pinnacle had been ascended earlier by Orrin Bonney. The last unclimbed pinnacle in the Grand Teton group, a slender shaft rising near the black dike on the southeast side of the Grand Teton, was climbed in September 1953 by Willi Unsoeld and party.

Northern Peaks. The northern section of the range has been little climbed and several unclimbed peaks still remain. On July 27th and 28th, 1953, Leigh Ortenburger and Bill Buckingham made the first ascents of the unnamed peaks, *10,950* feet and *11,117* feet, west of Mt. Moran. *Reynolds Peak* was climbed August 15, 1954, by Roald Fryxell and Gene Balaz, who found a cairn on the summit but no record. It had probably been climbed earlier by a surveying party. Peak *10,750+* feet, just west of Doane Peak, was climbed for the first time by Roald and Tom Fryxell and Earle McBride August 26, 1954. None of these peaks is difficult, but climbers have been discouraged from approaching them because of the long bushwhack involved.

LEIGH ORTENBURGER

Wind River Range. On July 4, 1954, we made the first ascent on Gannett Peak (13,785 feet) of the northwest ridge, which rises along the continental divide from Koven Col. Except for Harvard freshman Roger Dane and myself, our party consisted of fifteen- to eighteen-year-old school boys. Harold Janeway (3rd rope leader), John Briton, John Kelsey, William Rawls, Dixon Riley, and Philip Weld. To avoid a smooth rock step we took to the ridge about a hundred feet from its end on the Gannett Glacier side. After crossing a bit of ice and an easy bergschrund, we attacked a flaw in the buttress that proved extremely difficult. I led the first 30 feet on very small holds

and found no crack that would hold a piton. A projecting rock then offered a point which I used to belay our second rope leader, Dane, who continued another 30 or 40 feet on very exposed rock but with good holds. After the two of us were up, it took another hour and a half before the whole party completed this section. Just above, we reached the true ridge, which we followed to the summit of the northwest buttress. It was easy climbing to the base of the summit pyramid, where we had to surmount a small rock tower before finding ourselves at grips with the final 200 feet. To the right, the cliff fell over 2000 feet nearly perpendicularly. This steep pitch had good holds at first but soon became very smooth. A melting snow patch above caused water to trickle down this section and the verglas forced me to drive a piton that I used for direct aid to negotiate a treacherous spot. We soon stood on the summit of the northwest buttress. From there it was easy walking to the summit along the boulder-strewn ridge.

H. ADAMS CARTER

Ascent of the west face of the North Peak of Mount Index. Easily accessible from the highway, scarcely 60 miles from Seattle, and towering above the town of Index, Washington, are the three peaks of Mt. Index. This spectacular little peak, one of the scenic points on one of the main highways of Washington, has long tempted Washington climbers. Around campfires, stories have grown concerning the fabulous North Peak, stories of the mining days and the large sums bet and offerings by the railroad to anyone who climbed to its summit.

In 1929, L. Chute, G. Tepley, and a companion found a route up the steep northeast corner of the North Peak. Since then more than a dozen ascents have been made up this 5400-foot north summit and other routes. Among these was the grueling climb of the east face in 1951.

The west and biggest face has been discussed on several occasions during those winter armchair climbs. People have "looked at it," "taken pictures of it," "walked by it," and apparently through the years some have attempted to climb it.

During the summer of 1954 the west face of the North Peak

of Mt. Index came into focus. On June 19th, Don Claunch and I, with the aid of Tom Miller and Mike Hane, drove up the Stevens Pass highway and branched onto the Anderson Creek Logging Road. An hour's walking brought us to the end of the logging road and the base of the northwest corner of the objective. We traversed the bottom of the first ridge and began climbing on the second prominent ridge just north of a large couloir separating the North and Middle peaks of Index. This ridge led the entire distance to the summit, some 3500 feet. The going was easy but brushy, and we quickly moved up over a third of the total distance. Here, with approaching bad weather, we left a cache for a future bivouac, reconnoitered the route a few hundred feet above, finding evidence to indicate a good climb, and then made a hasty retreat to the car—drenched.

On the afternoon of July 4th, Don and I again made our way to the cache and bivouacked for the night. Early the next morning we continued up the ridge about 500 feet to where it consolidates into a face. The face is fringed by a steep arête originating on the left and terminating at the highest point in a shoulder arête which drops off steeply on both sides. This arête then joins the main mass of the peak along a short but airy knife ridge. We chose the middle of the face, following a "V" chimney some 400 feet up to the arête and then along it to the face of the main North Peak. A feeble attempt straight up proved discouraging, but a long traverse to the right, and then a series of long leads up, soon resulted in our gaining the North Peak – Middle Peak ridge just north of the ridge col. It was then a matter of minutes before reaching the summit register.

This face offers plenty of fourth-class climbing. Most of the belay points were quite secure, made so many times by the presence of small trees or brush. One might often feel that the belay points are insecure since the exposure is terrific a good portion of the route. Our climbing time from the cache and return was 13 hours, indicating it might be possible to complete the climb in one day, though not advisable.

PETE SCHOENING

Mt. Goode by Catamaran, Cascades. One of the important unclimbed faces among the large peaks in the Northern Cascades was the east face of Mt. Goode, rising in a long rock and ice precipice from the North Fork of Bridge Creek. To reach it one must voyage to the head of Lake Chelan, take a car up the road to Bridge Creek, then follow the trail to the head of the north fork.

My 18-foot sailing catamaran provided a unique and independent means of reaching the head of the lake; by noon July 18th John Parrott and I had motored and sailed the 40 miles from the state park to Stehekin. Later in the day we secured transportation and hiked seven miles up the trail. Darkness caught us crossing the torrent of a side stream; after a wetting we managed to find a dry spot in the snow-patched forest to build a fire and bivouac. Since we planned to descend by the west side, we did not take along sleeping bags and cooking utensils, but relied on the fire and extra clothing for warmth.

July 19th dawned clear. We began early and with difficulty wound our way for an hour through thick brush, then found a snow bridge across the main stream. In several more hours we climbed mixed snow slopes toward the great east face, constantly studying it for the best route. On the well-crevassed glacier at its foot we roped up. Soon the angle steepened. We climbed up a steep snow wall, crossed two narrow snow bridges, and then climbed a steep ice chimney between snow and rock. Rather than take to the rock, we climbed a very steep 1000-foot glacier apron in crampons. This section was quite exposed but provided good footing. Once on the rock at the top, we were at an elevation of over 8,000 feet, and in two hours of very interesting climbing on broken granite we reached the summit. We used pitons for safety twice; otherwise belays provided safe stances. The rock was steep but sufficiently broken to permit fast climbing along little minor arêtes. Shortly after three in the afternoon we rejoiced on top, ate a snack, and prepared to descend to the road before darkness. The weather changed the next day, and with a strong down-lake wind we sailed the catamaran back in just over four hours.

FRED BECKEY

ACTIVITIES OF THE CLUBS

Efforts were made to forward requests for notes to the secretaries of all the Sections and Clubs. The relatively small number of returns indicates that either the requests were improperly addressed or delays were made in submitting the material, which brought it in after the stated deadline. In the former instance we beg forbearance and hope that next year a better set of names and addresses will be available. In the latter, we hope that next year's contributions will arrive in time so that we can give better coverage to the activities of all the clubs.—The Editors.

A. A. C., The American Alpine Museum. For more than 20 years the American Alpine Club has exhibited museum items, beginning when our rooms were still at the Explorers Club, continuing during residence at 140 E. 46th St. and expanded at the present club house. We possess a wealth of historic and other material, so much so that the space required encroached upon some of our larger meetings. For this reason we have, through private subscription unassociated with the Club treasury, financed the reconstruction of the small building, formerly a stable, at the rear of our New York property. The work was done under the supervision of our member, W. R. Latady.

The American Alpine Museum, the result of a joint effort as largely anonymous as any expeditionary effort of the Club, was opened in October. It contains two floors, each a room 23 x 14 feet. Picture windows in the center of each room face the main house, from which a master switch controls key lighting at the entrance. Most of the showcases have been moved to the museum, where the current exhibit consists of old prints of Alpine costumes, together with actual costume accessories. Our large collection of reliefs, ancient and modern, of the Alps, Canada, and the Himalayas are displayed on tables, and there are additional small cases containing medals, club badges, and manuscripts. A new model of Mt. Everest (3 inches to the mile) shows the routes of British expeditions. The chief lines of ascent have recently been added to the Matterhorn relief.

The walls of the lower room are panelled in grey-toned wood, and some pictures and maps have been hung. The lighting throughout has been carefully arranged.

On the second floor there is a large case of Scandinavian material, much of it from Swedish and Norwegian Lapland. In

the autumn of this year we shall install there for several months an exhibit of mountaineering equipment, which will be on view through the time of the next annual meeting. Various college clubs will be invited to inspect it.

At present and for some time to come we shall progress gradually. This is the best system, for a finished museum is a dead museum. Our idea is that it should offer variety, novelty, and excitement. Not all exhibits will have the same appeal for everyone, for things but distantly related to climbing may be shown, opening new viewpoints. It is not possible for us to equal the larger museums of European clubs, such as one finds at Munich, Bern, Turin, and Lourdes (AAJ. i, 497; vii, 324; viii, 196), but we are the first organization in America to make the attempt and we have done so in the belief that this experiment will add further prestige to our tradition.

J. MONROE THORINGTON

A. A. C., Cascade Section. In spite of an exceedingly damp summer, 1954 proved to be a year in which much climbing was done in the Pacific Northwest. It was also eventful for other reasons.

Duke Watson was elected Chairman of the Cascade Section at the Annual Meeting in November 1954, replacing the undersigned. The Annual Meeting also brought much discussion concerning the proposed changes in the By-Laws of the Club. These discussions were greatly enhanced by the presence and comments of Henry Hall, who was visiting our Section at that time.

The meeting went late into the evening, but became even more interesting as it progressed. It finally reached a climax near midnight in an outstanding talk by Willi Unsoeld on Makalu. Willi's introduction by his wife, Jolene, was equally spectacular.

A number of the members of the Section are still very active in the Mountain Rescue Council. Ome Daiber is now President of the Council.

Earlier in the year the Section was pleased to share in welcoming members of the British Everest party. We understand Seattle had the largest audience for this event of any city in the United States.

George MacGowan's sudden death at age 52 was felt personally by all of us. George was Chairman of the Section for several years and was always a very helpful source of information and help in club and climbing affairs.

Dave Harrah and his commitee have made an excellent selection of a camp site for the 1955 Summer Camp. The Cascade Pass area offers some of the best climbing and scenery of any mountain area in the United States. Numerous climbs and nature walks, of all kinds and degrees of difficulty, will be available for those attending. We are looking forward to seeing many club members and their friends at that time (August 27 through September 11).

RALPH W. JOHNSON, *Ex-Chairman, Cascade Section*

A. A. C., Rocky Mountain Section. The Rocky Mountain Section of the A. A. C. was formed May 19, 1954, in Denver. To date we have had four meetings and the activity has done much to stimulate interest among local members, even as far away as Casper, Wyoming. Dorothy Swartz and I were elected temporary co-chairmen of the Section. We have had two distinguished visitors this fall, Henry Hall on his tour of western sections and Heinrich Harrer, whose lecture we sponsored in Denver and Colorado Springs. Various members have shown Kodachrome slides of the Cordillera Blanca and Mt. McKinley at our meetings, and lively discussions have taken place mostly in support of Council members elected by each western section, a small operating budget for the sections, rotation of the Annual Meeting, and/or a yearly visit out west by an Eastern officer like the trip made by Henry Hall this year, and a really active and useful Expedition Committee.

GERRY CUNNINGHAM, *Co-chairman*

Chicago Mountaineering Club. In the past year the Chicago Mountaineering Club did not have a western outing. Our local outings this year, held at Mississippi Palisades at Savanna, Illinois, and Devils Lake State Park at Baraboo, Wisconsin, began in February and continued throughout the winter.

At our monthly meetings in the Opera Building, slide showings and talks were given by members who made trips during

1954 to Switzerland, Mt. Rainier, Wind Rivers (1953 C.M.C. Western Outing), Colorado, Austria, Germany, France, and Italy.

We had a training program during the first part of the year, with an attendance of 53. The series of six lectures covered rope technique, rock climbing, snow and ice technique, trail and cross-country techniques, orientation, and safety. It was well received by the club, and we believe has proven very worth while.

MRS. HANS HEUER, *Secretary*

Dartmouth Mountaineering Club. The Dartmouth Mountaineering Club, bolstered by an enthusiastic group of new and prospective members, has had quite an active fall season. We had a group of about 13 who went to the Laurentians at the end of October for a joint climb with McGill. Most of the climbing was in the Val David area, especially at the Condor.

As for non-climbing activities, we have initiated a committee to study the safety aspects of climbing. They are to set up a program of equipment surveys and safety talks, and build a device for practicing dynamic belays.

TIMOTHY FOHL, *Secretary*

Iowa Mountaineers. The club sponsored a large number of conditioning hikes, horseback outings, and club-house social activities. Sixteen weekend climbing outings were held in Devils Lake State Park in Wisconsin, Mississippi Palisades State Park in Illinois, and Backbone State Park in Iowa. Three special climbing programs (Dil Dunaway on Fiz Roy, Robert Craig on K2, and John Ebert on the Bugaboos) were sponsored.

John Ebert led a five-week climbing outing to the Alps. Twenty-four participants went up 14 peaks in Austria, Italy, and Switzerland. Weather conditions were unusually bad, but the party climbed the Matterhorn, Monta Rosa, Grossglockner, Monch, and Jungfrau; Piz Tschervia and Piz Mortarasch; Grosse Zinnen, Patternkoffle; Violet Towers, Tannen Spitze, and Kleine and Grosse Simelstock. The Sawtooth Outing was led by Joe Stettner and attracted 86 participants. First ascents during the outing included Clockstone Peak, Alpine Spire, Alpine Spire

#2, Middle Alpine Spire, South Alpine Spire, Cirque Lake Peak, and Silicon Peak. Second ascents included Baron Spire, Mt. Bush, and Ede Peak. Third ascents included Grand Aiquille (three other ascents), Mt. Hancher, and Bruce Peak. The West Peak of Mt. Heyburn was climbed twice (7th and 8th ascents), and the Middle Peak of Mt. Heyburn was climbed by two parties. The Great Mogul (Redfish Peak) was ascended once by the northeast ridge and four times by the north face. Mt. Perrilan was climbed once, Mt. Thompson by four parties, and Mickey Spire by three. A permanent register was placed on the summit of Mt. Hancher and Middle Heyburn.

JOHN EBERT

Mazamas. The Club has reached the 1000 membership point, with indications of an increase next year.

The climbing program was extended to 60 climbs with over a thousand participants, although only 742 persons were successful because of a record of 14 climbs stormed-off. We are pleased to have our record of no serious accidents continue. The spring climbing school program was extended and more followers took part than in previous years. There was a weekend glacier rescue school scheduled, which would have been very well attended except that storms set in. One of our school ideas has been put to good use. All members of every party must carry their own safety gear (i.e., sling ropes and carabiners) and not rely on the leaders for this equipment.

Our annual two-week outing along the "magic Circle" in the High Sierra was well attended.

The Conservation program was very full because of the many attempts made to violate the beauties of the country of which we are so proud. We have been active in the problems involving the Dinosaur National Monument, Three Sisters Wilderness Area, Mt. Rainier Tramway, and others. Our climbing leaders are operating a "litterbug" campaign to keep the trails and camps clean.

We feel that under Martha Ann Platt, our first woman president, the Mazamas have completed a very successful year in spite of the unfavorable weather throughout the summer.

JOHN BIEWENER, *Director*

Sierra Club. Mountaineers of the Sierra Club were active on foreign fronts with the Makalu Expedition and the 1954 Peruvian Expedition, as well as engaging in several outstanding climbs in this country. Two climbs of merit in Yosemite Valley were actually second ascents, but when they are the North Wall of Sentinel Rock and the Lost Arrow from the base, they deserve special mention. Newly formed within the Club is the Mountain Rescue Commitee under the direction of Larry Williams and Alfred Baxter. Up to now no formal committee has existed and the recent interest in this group has shown a definite need for its formation. The Committee plans eventually to have a rescue organization in California that could be used in the event of emergencies when local help is inadequate. The group has already aided in one event in Yosemite Valley as a starter. It is hoped to have a vast network of qualified climbers available in California who can be reached whenever needed. At this moment the commitee is gathering information and data before the final setup is decided upon. The Board of Directors of the Club has offered certain funds for the purchase of necessary equipment. The Club's Mountaineering Commitee under Hervey Voge is embarking upon a program of safe climbing, with an eye particularly toward the fringe summer climbers who usually do not get the excellent training from the organized rock climbing sections. As always the emphasis in the Sierra Club is upon safety in climbing.

RICHARD C. HOUSTON

Stanford Alpine Club. Summer vacation found Stanford parties in the Sierras, Cascades, Tetons, Wind Rivers, and Colorado Rockies. Shiprock and Devil's Tower were both successfully attacked in late summer by S.A.C. members. The high point of the summer activities was the very successful six-week expedition to the Coast Range of British Columbia, in which six members participated. This was the first Stanford venture into expeditionary mountaineering, and it is hoped that it will set a precedent for equally successful undertakings of this sort in the future.

The program during the school year is focussed upon rock

climbing in nearby climbing centers, with the accent on the training and encouragement of new climbers. Practice climbs for the latter purpose are held every week, and first-aid lectures and dynamic belay practice form an important part of the program. Weekend trips to Yosemite Valley climax the club's schedule in spring and fall. This year the autumn trip found about 30 members enjoying perfect climbing conditions two days before the first winter storm closed the area. Other areas are also visited during the school year. Castle Crags in northern California received its annual Thanksgiving visit, and during the winter an invasion of Pinnacles National Monument was scheduled. In addition, winter time found Stanford climbers enjoying the unexcelled ski-touring opportunities of the high Sierra.

ROBERT BROOKE

Yale Mountaineering Club. A marked increase in undergraduate enthusiasm for climbing during 1954, along with the fact that Connecticut State Parks are closed to climbers, has led the Y.M.C. to explore new cliffs in an attempt to find and develop a wider range of practice routes. At present three cliffs have been extensively explored, those at Waterville, Ragged Mountain, and Mt. Sanford, all within easy reach of New Haven.

The rock climbing program has been carried out not only during the spring and fall but also during the winter months when temperatures and other weather conditions provide experience in coping with a variety of climbing conditions. These sessions are not only used to acquaint the beginner with basic techniques and provide practice for the more experienced climbers, but are also employed to emphasize and practice safety and rescue techniques. On several occasions the Y.M.C. has practiced dynamic belaying with the rock climbing section of the Connecticut A.M.C., both groups finding such practice a valuable and necessary part of training.

In addition to the four main officers of the club, the Y.M.C. has recently established a fifth, the Safety Chairman. It is his responsibility to emphasize the aspects of safety in regard to climbing in the training program. He is necessarily one of the more experienced and able members of the club.

Much time has been put into the first edition of the Yale Mountaineering Club Journal which will become a reality in the spring of 1955.

During the summer of 1954, a group of Yale climbers spent a period of several weeks climbing in the Selkirks and Rocky Mountains of Canada, making many ascents, despite heavy snow conditions and gaining much valuable experience. A party also made an ascent of the Devil's Tower—the third by Yale climbers.

STEPHEN C. PORTER, *President*

ALASKA

First Ascent of Mt. Drum. On June 4, 1954, the bush pilot, Herb Haley, flew Keith Hart from Chitna to a little meadow, southwest of Mt. Drum (12,002 feet), a place which Keith knew from a previous unsuccessful attempt on the mountain. George Schaller and I were picked up by the pilot at Copper Center and flown, in only ten minutes flying time, to the same meadow. On the same day we packed for about seven hours across the tundra of the foothills. The next day, after traversing a large glacier, we followed a ridge to about 6000 feet, where we camped. On June 6th we ascended snow and ice on the left of the ridge to a big snowfield at about 8,500 feet, where we made our final camp. On the following day, after traversing about 100 yards to the right, we kept straight up through knee-deep snow to the summit. The crevasses were well bridged and obvious. Only one slope had dangerous snow and was steep. Three rope lengths from the top we took to a beautiful ridge and reached the summit after a total of five hours from camp. The weather was beautiful, although Sanford was obscured in clouds. The descent was uneventful, and we went far enough on the same day to be clear of the snow and ice. On the whole, the climb was easy. The three former parties which had attempted the mountain had not chosen the right route and were hindered by bad weather.

HEINRICH HARRER

MT. DRUM FROM THE NORTH
Route of Harrer party and two camps shown.
Photo, B. Washburn

Mt. McKinley. When we, Jaq Lasner, Norm Saunders, and I, all students at U.C.L.A., first thought of trying McKinley, our main consideration was money. By cutting here and there, we finally managed to bring the cost of the climb, from Los Angeles to the summit and back, down to $200 apiece. The other problem was that there were only three of us and four is a minimum for the peak. Fortunately we were put in touch with Woody Sayre and Norm Hansen from Boston, who were in the same fix. They met us at McKinley Park.

We drove our '46 Chevy carryall 4000 gasping miles to the base of the mountain, arriving at Wonder Lake on July 14, 1954, to try the usual route: McGonagall Pass, Muldrow Glacier, Karsten's Ridge, Denali Pass. After struggling, occasionally submerged, through the McKinley River with 110 lb. loads, we decided to relay up to the head of the Muldrow Glacier. Although mosquitoes and rain played the major roles during the 20 miles of tundra up to McGonagall Pass, we had all our gear and food, 50 lbs. of each per person, on the pass by the fifth day. Going was slow on the lower glacier, which was covered with three feet of powder snow instead of the expected moraine, but later on the new snow helped strengthen the dwindling snow bridges of the first and second sérac areas. Ending our relaying and leaving skis and snowshoes, we took ten days of supplies in 40 lb. loads apiece up two-mile long, 4000-foot high Karsten's Ridge. The climb from the Muldrow at 10,500 feet took 18 hours and ended in our becoming completely exhausted during a violent storm on the Coxcomb. The ridge was in perfect condition on its very crest, but otherwise it was ice under three inches of snow. Our 14,400-foot camp at Browne's Tower was too exposed in the continuing storm, so we moved it to the shelter of a crevasse on the south side of the Harper Glacier about a quarter of a mile above the Tower. Unfortunately, it proved to be too sheltered since two snow slides dumped on it during the night. Luckily they

MT. WRANGELL AND MT. DRUM
Harrer's route on Mt. Drum (12,000 ft.), shown from air strip off picture at right, and two camps on the mountain. Mt. Wrangell (14,000 ft.) was occupied in 1953 by the cosmic ray expedition.
Photo, B. Washburn

were just accumulations of snow dropping off the lip of the crevasse, but they buried Woody in his tent under six feet of snow and it took two hours to dig him out.

The same day the storm ended and we moved midst howling winds to put a high camp at 16,400 feet on the Harper Glacier. August 3rd, our 20th day, proved to be sparkling blue with not a cloud overhead. We all started for the top at 7 A.M. By noon we were at Denali Pass, 18,400 feet, but Norm Hansen and Woody Sayre were very tired and at 19,000 feet they turned back. Since we were only 1000 feet from the top and the weather was perfect, we decided to try for the top. We ran into a short but severe storm at 19,800 feet but reached the summit in the clear golden light of the lingering sun at 6:30 P.M. Leaving the beautiful summit after a half hour, we returned to camp in three hours. After moving their tent the next day to Denali Pass, Woody and Norm climbed to the top the day after, returning August 6th to the high camp. The descent was made in the continuing clear weather, and we arrived at Wonder Lake on August 10th, the 27th day of the trip.

JON H. GARDEY

Split Thumb, Juneau Ice Field. Looking northeast from camp 16-A on the Lemon Glacier, one sees the intriguing rock sentinel of the Split Thumb (5523 feet), rising near the western periphery of the Juneau Ice Field. The first ascent of this peak was accomplished July 2, 1954, by Ed LaChapelle, Dick Hubley, Carlton Ray, Dr. Conrad Buettner, and Bob Goodwin, members of the Juneau Ice Field Research Project.

We started from the Jamesway hut at 7 A.M., on one of the rare clear days experienced on this part of the ice field, out onto the smooth névé of the Lemon Glacier. With some on skis and others on foot we traveled down glacier to the point where a small tributary glacier from Scorpion Peak blends with the Lemon Glacier. Climbing up this tributary, we reached a glacier-covered ridge which trends towards the base of the Split Thumb. Contouring along just below the crest of the ridge, we arrived at a col which we crossed. We then ascended the following ridge and dropped thence down to a cirque glacier lying beneath the

south face of the peak. By cutting diagonally to the right, we arrived at the base of the southeast arête of the mountain. This is a long, high ridge broken by numerous little gullies encased in ice and snow outlined against the sky. We cut and kicked steps up a steep couloir to the lowest visible point and ascended this arête over easy rocks to the foot of a steep rock face lying across the arête. I kept to the right at the foot of the rock face and ascended the edge of the east face of the peak over good rock, utilizing small pinch holds. The summit rocks were reached directly. The other four members of the party roped up and traversed under the face to a shallow couloir on the south face. Ascending the couloir for 25 to 30 feet, they then climbed diagonally up a wide crack which leads to the summit rocks and reached the summit at noon. On top there spread out before us an unlimited view of the entire ice field with its numerous peaks and pinnacles rising out of the snow. We built a cairn, took photos, and consumed a leisurely lunch before descending and returning via the same route.

ROBERT GOODWIN

Mt. Wrangell Project. (The following is an excerpt from a report by Philip C. Bettler, leader of the 1954 project.—Editor.)

The Mt. Wrangell high-altitude laboratory was reoccupied during the summer of 1954 and operated for the period from June 28th to August 22nd. Two research programs were carried on: 1) the cosmic ray group from New York University made measurements of the cosmic ray neutron flux variation, 2) a group from the Arctic Aeromedical Laboratory at Ladd Air Force Base, Fairbanks, Alaska, studied the physiological effects of cold and high altitude.

The Mount Wrangell Laboratory was established during the summer of 1953 by the joint efforts of the cosmic ray group from New York University under the leadership of Dr. S. A. Korff and a group from the University of Alaska headed by Dr. Terris Moore. The project was made possible by the support of the Office of Naval Research and by Dr. Moore through his donation of time and the use of his especially equipped plane for the transportation of personnel and supplies to the top of the moun-

tain. The laboratory is situated near the summit of Mt. Wrangell at an elevation of 13,700 feet. It is on the edge of a large snow-covered plateau about a half mile by a mile in size. This plateau is believed to represent the snow-filled area of a dormant volcanic crater. The laboratory huts are on a dirt and rock outcrop on the south rim of the crater, which is kept relatively free of snow and ice by the winds and by the warmth of the ground below.

As usual in any high-mountain area the *weather* may be quite variable, and one may expect rapid changes from completely calm, good weather to violent storms. In general about 50% good weather and 50% stormy weather were experienced. Temperatures varied from a high of 30°F. to —1°F., with an average of approximately 20°F. However, August 1954 was quite different with considerably more stormy periods. The most violent storm experienced to date came during that period and lasted about six days from July 28th to August 3rd. Winds rose as high as 60 to 70 miles per hour and approximately five feet of new snow were deposited on the summit plateau. The Jamesway huts withstood the storm fairly well, but considerable snow drifted in through the cracks and seams of the overlapping blankets which form the roof of the huts. During the height of the storm the wind blowing down the smokestack extinguished the stove quite often, causing the personnel to resort to sleeping bags to keep warm. Conditions were such, both inside and out, that it was extremely difficult to carry on normal operation.

Research programs: A. Cosmic Ray Studies—Dr. S. A. Korff and his group at New York University have for many years been engaged in the study of cosmic ray phenomena. The continuation of this work led to the establishment of the Mt. Wrangell High Altitude Laboratory. The high energy charged particles which constitute the primary and much of the secondary cosmic radiation are highly absorbed by the earth's atmosphere and are deflected by the earth's magnetic field such that the total intensity of the radiation as measured near the vicinity of the earth increases as one goes to higher altitudes and latitudes. The mountain areas of Alaska offer a unique place on the earth's surface, combining to the greatest degree high altitude with high geomagnetic latitude. The study of the time variations of cosmic radia-

tion requires permanent stations such as can be maintained at present only on the surface of the earth.

Work in recent years by a number of investigators has shown that the intensity of the nucleonic component of cosmic radiation is particularly sensitive to changes in the intensity of low energy, primary cosmic radiation. The measurement of the cosmic ray neutron flux affords a convenient method of measuring the time-dependent variations of this nucleonic component. There is need to monitor these variations at various places on the surface of the earth to help understand cosmic ray phenomena.

A neutron counter pile for continuous monitoring of the neuton flux at the top of Mt. Wrangell was set up and operated. A certain amount of data was obtained. However, considerable difficulty was encountered with the counting and scaling circuits because of electrical noise from the engines and generators and frequency variation of the power system. Attempts to filter the noise from the system were not entirely effective. It is believed that the difficulty was mainly due to the lack of adequate shielding of the counter and scaling chassis.

B. Physiological Studies: Recent work by Elsner at the Aeromedical Laboratory and by others suggests that some physiological effects of prolonged exposure to cold may be beneficial to subsequent exposure to an environment of low oxygen tension. Similarities in the processes of acclimatization to both forms of stress are also suspected. A study of the ability of men to control body temperature during exposure to cold before and after acclimatization to low oxygen tension would be of considerable value in elucidating the interrelationships of adaptations to cold and hypoxia. Experimental procedures were carried out at the summit station involving assessment of physical fitness and adrenocortical function in four subjects. In addition controlled studies of body temperature regulation were performed at the Arctic Aeromedical Laboratory before and after the period on Mt. Wrangell.

CANADA

Kaskawulsh Group, Yukon Territory. In 1954 a number of summits forming the divide between the Kaskawulsh River and

the Shakwak Valley were climbed by our party, which included Ernest Manko, Bernard Tallon, and myself. Perhaps the most notable ascent was that of the highest peak of this group, "Telluride Peak" (9200 feet), climbed by Manko and me, July 17, 1954, from a camp on the west fork of Telluride Creek. The route lay up firm rock ribs on the south face and a final rotten snow ridge. The last 1500 feet took about three hours. The descent was made down the easy southwest ridge. Tallon and I made an interesting trip in August via Bullion and Metaline Creeks to the head of the Duke River. Two 9400 ft. peaks were climbed on the way.

JOHN O. WHEELER

Canadian Rockies. A party of six from Washington, D. C., including Don Hubbard and Sterling Hendricks, made first ascents of the four mountains on the ridge between the Lyell Ice Field and Bush Mountain. These were Icefall Peak of Bush Mountain (10,420 feet), Kemmel (10,160 feet), LaClytte (9,505 feet), and Lens (10,160 feet). Icefall Peak, which gave the best climbing, was ascended by a steep eastern snowfield and glacier to the summit ridge. The time was 12 hours from a camp at timberline east of Mt. Kemmel. A solo ski ascent of Mt. Kemmel was made by Joan Showacre.

STERLING HENDRICKS

Portal Creek Region, Canadian Rockies. Near the head of Portal Creek and east of the Ramparts lies a mountain group, including the Trident Range, which has received little attention. In 1930 N. D. Waffl climbed Mt. Estrella, which he described as one of his best rock climbs in Canada. Mt. Majestic has been climbed several times. The other peaks of the group have apparently been neglected.

From a camp on Portal Creek Mike Smith and I climbed, August 9, 1954, to the pass west of the Vertex Peak and ascended an unnamed and hitherto unclimbed peak south of Vertex which for our own purposes of identification we referred to as "Vertex Jr." (ca. 9,300 ft.). Two days later we made a first ascent of Vertex Peak (9,600 ft.), the approach being from Maccarib

Pass. The route leads from the west to the summit ridge which bends around the beautiful cirque enclosing the Circus Valley. From the summit the view of the Ramparts, Edith Cavel, the mountains of the Whirlpool, and, in the far distance, Columbia is a fine one.

Two days later we climbed Franchere Peak (9,225 ft.), which lies between the Astoria River and the head of Portal Creek. The approach from Portal Creek up the valley between Aquila and Chak is a delightful one. The route on the north face, a combination of snow and rock, is interesting. On this summit we found a cairn but no record. The view of Vertex and the Trident Range was rewarding.

ARCHIBALD MACINTOSH

Purcell Range, Farnham Group. During August 1954 a party of five, four of us members of the Harvard Mountaineering Club, climbed in the Farnham Group of the Purcell Range. The party was composed of Arthur Read, Robert West, his wife Peggy, Peter Luster, and John Noxon. Our supplies were packed by Mr. Tegeart of Invermere, who took his horses to the head of Farnham Creek and out again in the remarkably short time of three days. We floundered after him through downed timber and occasionally in the river bed where an avalanche track blocked the way. The journey up Horsethief Creek and its tributary, Farnham Creek, required four days. From a camp in the upper valley of Farnham Creek we climbed Cleaver, the Guardsmen (two of them first ascents), and Jumbo. All of these we easily reached from the Commander Icefield, which we gained by a long snowslope below the Cleaver. From the lower edge of the icefield, active almost everywhere, there is a continual rain of séracs and ours was in fact the only safe approach. While the others climbed Jumbo, Read and Noxon traversed Commander; we particularly enjoyed the ascent of the north ridge despite rotten rock and unsuspected ice above. During the next few days we removed to a high camp in the Farnham – Sir Charles Cirque, and from there all climbed Sir Charles by a new route on the south ridge. Read and West also made the third ascent of Mt. Farnham. Prolonged bad weather precluded further climbing.

JOHN NOXON

ARCTIC

Arctic Alpine Ascents on Bylot Island. During the past summer I was a member of an expedition sponsored by the Arctic Institute of North America and the New York Zoological Society. The expedition went to Bylot Island, north of Baffin Island at 73° north latitude in the northwest territories of Canada. As a part of the expedition activity Ned Ames and I undertook to explore and climb some of the inland area. On July 2, accompanied by Bill and May Drury and Idlout, our Eskimo, we left the party's base camp on the west side of the Aktinek River at 3 P.M. and travelled east over the sea ice of Eclipse Sound to the Sermelik Glacier by dog sled. After the usual seal hunting and a visit to an eskimo camp on the way, we reached the Sermelik Glacier at 9:30 P.M. Since Ned and I anticipated largely night climbing to take advantage of the coolness and more solid snow conditions, we shouldered our packs and started up along the west side of the Sermelik Glacier. Our goal was an old glacier bed, now a river valley which led up to the west from near the snout of the Sermelik and which ended in Eclipse Sound. We traversed the hills on the south side of the river for three hours and then set up a camp on a fine heather meadow at 2 P.M. The next morning was glorious and we enjoyed pleasing views of a truly alpine nature around us. We continued our traverse but soon realized that this was an error and descended to the river bed which was covered with ice and some of the largest ice crystals I have seen. Progress became much easier and we rapidly approached a glacier snout not on our map, where we had lunch. After lunch we came immediately to a large river flowing over the frozen outflow tract of this glacier. We doubled back and were able to reach the old lateral moraine by means of a spectacular overhanging portion of this frozen area. We followed the moraine in a westerly direction and reached the southern slopes of the range which culminated in Mt. Thule. We traversed these slopes and finally came to the terminal moraine and stream bed of the meltwater from the glacier on the south CWM of Mt. Thule. The upper reaches of this bed were still filled with snow and travel was arduous. When we reached the ablating snout and found a snow-free area we camped at 10 P.M.

The following day, July 4th, was spent in sleeping, eating, and improving the navigability of the local stream. At 8 P.M. after supper we felt that conditions had improved and we started for Mt. Thule which lay about due north (true). We continued up the valley a short distance and then started up the slopes to the west of the glacier. We made good progress and reached the upper portion of the glacier at 9 P.M. Here we roped up and started around the western side of the glacier toward the final cone of Mt. Thule. Progress was easy over the glacier. As the slope steepened, steps had to be kicked. The snow was of good consistency and we climbed steadily along the western edge of the south CWM, close to the rocks. The central portion was ice covered by a thin veneer of wet snow which produced what Ames called 'slushalances.' We reached the southwest ridge about 10 P.M. and Ned took the lead. The ridge was easy climbing over rotten sandstone rocks and then snow and ice.

As the ridge steepened and became more icy, we put on crampons and climbed rapidly to the first summit and on to the final summit which we reached at 12:50 A.M., July 5th. The sun was still up and the air was deathly still. Since no survey work had been done, we sighted on various peaks farther inland on the Island to determine how many were higher than Mt. Thule, which had been triangulated at 5700 ft. As a rough estimate from our Brunton compass there were 10 peaks higher. One of these, which lay N.NW. of Mt. Thule, we decided should be next on our agenda. The descent was by the same route and uneventful. We reached camp at 4:30 A.M. and turned in.

Shortly after midnight, July 6th, we broke camp and moved up to the glacier just to the west. This glacier was the same one whose snout we had passed two days previously. It makes a large curve to the east at its snout and is then at a right angle to its original course (south). Here we cached supplies for our return and then continued on snowshoes up the glacier. Our progress was uneventful except for one stream crossing where my snowshoe broke through and uncovered a kind of artesian well. We established our third camp on the glacier at the final rise before our unnamed peak at about 4100 feet elevation.

At about 7:30 P.M., July 6, feeling we had rested enough, we snowshoed up the slope facing us and reached an out-crop-

ping of rocks. Here we left the snowshoes and put on crampons. The surface, firm with ice below the snow, gradually became largely ice with small trickles of melted water coursing the surface. We made rapid progress and reached the summit at 9 P.M., where we repeated our rough surveying. There were still 4 or 5 peaks higher; the highest was probably below 7,000 feet. We estimated our altitude at 6,100 feet. Trotting steadily, we reached camp in 45 minutes.

The weather continued excellent and we were apprehensive lest it deteriorate. We had seen a considerable portion of the interior of the island which was a jumble of peaks and glaciers, and since the peaks in our area presented no serious mountaineering problems, we decided to complete our circuit and return to the base camp.

We left our third camp at 6:30 P.M., July 7, descended the glacier, and picked up our cache. After crossing the glacier, our route led us to another frozen river or lake bottom which lay between the hook-shaped glacier and the Aktinek Glacier. As we crossed this area, it was apparent that glaciers had previously filled this valley, since there was evidence of glacial activity high above us on the bare slopes to the north. We reached the Aktinek, still on snowshoes, and continued down it about two miles where we established our last camp.

July 8th was overcast and we left camp at 6:30 P.M., hoping that the melting would be minimal and that the Aktinek River would be at a low level when we had to cross it. The lower end of the Aktinek is scoured by many surface streams often of large volume and presenting real problems in crossing. Fortunately we had to cross only minor ones and then could parallel the others as we descended the eastern edge of the glacier. The snout was ablating and we descended on crampons to the river bottom.

We crossed a small tributary easily and then at 1 A.M., July 9, reached the main branch of the Aktinek River which drained the western side of the glacier. Roped to Ames, I made the first attempt to cross, but found that it was too fast and deep about 20 feet from the opposite shore. I retreated and Ames tried farther upstream where it was nearly a rope length broader—and less rapid. He was successful. Our last real obstacle past, we cele-

brated with hot tea and then pushed on to base camp which we reached in a nasty blowing rain at 4:30 A.M.

BENJAMIN G. FERRIS, JR.

Spitzbergen. A group from the Österraichischen Alpenverein, under the leadership of Hans Gsellmann, spent five weeks in Spitzbergen from the end of June 1954 on. They made 25 ascents, all but three of them new climbs. Some of these were very difficult and took 25 to 30 hours.

SOUTH AMERICA

Andes, Argentine. Jesús Casanova, Ricardo Gallop, and Renzo Vidoni of the Club Andinista Mendoza made the first ascent of all three of the Tres Picos del Amor (18,054, 18,044, and 17,933 feet). After a long approach they established their high camp at 16,000 feet. On their first attempt they were driven back by wind and verglas. On March 3, 1954, after traversing a large field of *nieves penetentes,* they continued on to the main summit and followed the sharp ridge to the central and south peaks. The descent, which necessitated various rappels, was completed after 17 hours of climbing.

A group from the Club Andista Mendoza and the Club Pehuenche made the second ascent of Cerro Sosneado (15,896 feet) on February 13, 1954.

Aconcagua. The 23,036-foot summit of the Americas was climbed several times in the past year. The most notable was the French ascent of the South Face, which rises 10,000 feet above Puente del Inca in the Horcones Valley. The climbers compared it to two Eiger North Faces, one on top of the other. Under the leadership of René Ferlet, Lucien Bernadini, Andrien Dagory, Edmond Denis, Pierre Lasueur, Robert Pagarot, and Guy Poulet established their base camp at 14,100 feet on a rocky point above the Horcones Glacier. On the central rock rib between Camp 1 (14,750 feet) and Camp 2 (17,060 feet) the climbing on the vertical towers of rotten rock was so difficult that they fixed 1300 feet of rope. Camp 3 was placed at the foot of a band of rock below a hanging glacier, which continually threatened

the whole lower route with avalanches. High winds plagued the climbers incessantly here as well as higher. The route to Camp 4 at 19,700 feet at the lower edge of the hanging glacier was so difficult that one vertical chimney took them seven hours to climb. From Camp 5 at 21,000 feet, at the upper edge of the hanging glacier, all the climbers except Ferlet, who was suffering from sciatica, set out for the summit. Climbing difficulties were not yet over and they had to resort to direct aid at an altitude of over 20,000 feet. Night forced them to bivouac on the face and only at 8 P.M. on the night of February 25, 1954, did they reach the summit. The climbers began their descent on the ordinary route towards the Plaza de Mulas, but, overtaken by storm and darkness, they had great difficulty in finding their way. Four of them found shelter in the 21,325-foot President Perón Shelter. The two others, Dagory and Lesueur, were found lower down during the night by Chilean climbers and an Argentine army detachment who had left the 20,000-foot Eva Perón Shelter in search of them. After a painful descent the exhausted climbers were finally evacuated to the hospital at Mendoza where all but Pagarot had to submit to amputations because of severe frostbite. It should be noted that the climbers aggravated their injuries enormously by vigorous massage and beating their frozen members with ropes!

Andes, Chile. On January 28, 1954, Juan Harshein, Bion González, and Walter Bachmann of the Club Andino de Chile made the first ascent of Chachacoma (16,400 feet) in the Cordillera de la Serena. This ascent took place on a reconnaissance of a nearly completely unexplored region. They had hoped to find the route to Cerro Alivares (20,340 feet) and climb it, but they lacked time to do so.

In the Maipo Valley a group from the same club climbed for the first time the Alto del Yeso (16,912 feet) on February 27th. They established camps at 12,000 and at 14,750 feet. The climb was made infinitely more difficult by the rotten rock, which they described as "compressed mud." To assure success they divided into two groups on different routes. Bion and Ociel González were the pair that reached the summit.

Other notable Chilean ascents included the following: Littoria

(17,700 feet), February 28, by Luis Krahl, Sergio Kunstmann and Edwardo Meyer, 2nd ascent; Cortaderas (17,060 feet), February 1, by Krahl and Kunstmann, 1st ascent of south face; Corona (13,780 feet), January 10, by Deanna Manley, Ociel and Bion González, and Roberto Busquets, 1st ascent of east face; Punta Negra (13,288 feet), January 17, by Bion and Ociel González, 1st traverse from Punta Andino; Nevado Piuquenenes (19,685 feet), January, by E. Maier, Schneider and Schlotfeld, 1st ascent of Chilean side.

Andes, Peru. The Austro – Swiss expedition under the leadership of Fritz Kasparek, who climbed the North Face of the Eiger in 1938 for the first time, came to a tragic end on Salcantay's southeast face about a thousand feet lower than the summit when the leader and the Swiss Anton Wahenauer were swept by a cornice break down a couloir and plunged 5000 feet to their deaths. The other rope of Waschek and Ambichl managed to save themselves.

The Österreichischen Alpenverein's expedition to the Cordillera de Huayhuash under Dr. Hans Kinzl climbed two peaks over 20,000 feet and thirteen over 16,000 feet and carried out considerable glaciological work. The climbers under Wastl Mariner's leadership were Manfred Bachmann, Siegfried Eberle, Waldemar Gruber, Heinrich Klier, and Karl Lugmayer. They established their first base camp above Chiquián on Jahuakocha Lake at the foot of Jurupajá at 13,000 feet on June 24th. On July 27th two climbed the north peak of the Nevado Tsacra chico (18,087 feet) and traversed a badly corniced ridge to the main peak (18,254 feet) while the rest reconnoitered the Nevado Tsacra grande (18,950 feet) but could not find a route safe from avalanches and enormous cornices. Early in July they established four camps on Yerupajá (21,764 feet). In their try for the summit they found an insurmountable ice barrier on the west ridge. An attempt to turn this on the west face failed in powder snow. On July 8th Klier and Lugmayer made the second ascent of the Nevado Rasac (19,714 feet) on a second try. (The first ascent was made by Erwin Schneider in 1936.) A new base of operations was set up on July 11th near Cuyoc at 14,750 feet. From there they climbed Puscanturpa (18,544 feet) on July 16th, the Nevado

Sarapo (20,160 feet) on July 25th (Bachmann and Lugmayer), Jirishanka chico (17,928 feet) by the east ridge on July 29th, and Ninashanka (18,495 feet) on July 30th.

In the Cordillera de Carabaya, June 6, 1954, Mr. and Mrs. G. H. Francis and P. B. Fisher climbed the Nevado de Japuma (18,186 feet). They were members of a geological expedition.

Peruvian climbers were also active during the past year. On the Nevado Vallunaraju (18,700 feet), May 12, 1954, Elena Morales Arnao established an altitude record for Peruvian women. Hugo Vargas, Antonio Ramos, Manuel Díaz, and René González made a new route by completing the ascent of the same mountain on the north face on June 5th. On June 10th a detachment of the Andean Police made the first ascent of the 150-foot lower east peak, to which they traversed from the main peak. Other important ascents include the following: Nevado Urus (18,028 feet), April 3, 1954, by César and Alberto Morales Arnao, 1st ascent, made from Ishinca Valley above Paltay up south face; Nevado Churup (17,700 feet), August 5, 1954, by Alberto and César Morales Arnao, Aurelio Palacios, Fernando Canaval, Juan and Romelli Thomas, Alfonso Miró, Ricardo Bonnemaisson, Jorge Fernández, Carlos Escudero, and Augusto Márquez, 1st ascent of central peak, made from Acoshcocha by north face; Nevado Ucro (17,060 feet), August 6, 1954, by Alfredo del Arroyo, Arturo Soriano, and Hugo Vargas, 1st ascent, made from Acoshcocha by south face; Nevado Pucaranra (20,158 feet), July 23, 1954, by Victor López, Carlos Sánchez, and Máximo Guimaray, 2nd ascent, made from Lake Tullparaju up the west slope; Pico Rasac Norte (18,370 feet), November 29, 1954, by César Morales Arnao, Eugenio, Victor and Emilio Angeles, 1st ascent, made from Lake Solterahanca along the north ridge.

H. ADAMS CARTER

NEPAL

Mt. Everest, solo attempt. In the spring of 1952 a Dane, Klaus Bekker Larsen, with four Sherpas, traveled from Darjeeling to Namche Bazar and climbed to the Lobujya Khola between Nuptse and the Lho La. After they were forced back from there,

they crossed to the Rongbuk Monastery and followed the old English route on Mt. Everest to within 300 feet of the North Col. Lack of equipment prevented further progress, although the weather continued favorable.

Annapurna IV. The post-monsoon Japanese expedition in 1953, under the leadership of T. Imanishi, came close to reaching the top of its 24,688-foot objective. The route up the south face they felt impracticable for porters; so on October 10th they turned their efforts to the north face. They reached base camp at 14,750 feet on October 16th and placed camps at 16,400, 19,000, 20,350, 22,300, and 23,600 feet. On November 3rd, Imanishi, Fujihiri, and Sherpa Da Namgyal were stormbound at Camp 5 but ready for a bid for the summit. When their tent gave way on the morning of the 4th, they had to retreat.

Manaslu. Fourteen Japanese climbers returned in high hopes to Manaslu but at Sama at the foot of the mountain in early April, 1954, they faced the hostile inhabitants of the valley and their lamas who refused them permission to continue. They declared that the Japanese had violated that holy mountain the year before and the local people were being punished by misfortunes, An avalanche had destroyed a lamasery, killing three lamas; typhus had struck; a smallpox epidemic had already killed 13 of the villagers; drought was destroying crops. The Japanese had no choice but to change their objective. Himalchuli (25,801 feet) was ruled out as too difficult. They turned to Ganesh Himal (24,299 feet), where they failed to find a practicable route.

Dhaulagiri. After the Swiss failed to climb Dhaulagiri (26,811 feet) in 1953, Andre Roch declared, "Success on this peak seems a nearly hopeless undertaking. Dhaulagiri appears climbable, yes, but the risks are much too great." The Argentines, however, under Francisco Ibáñez, came within the narrowest margin of climbing the mountain. They followed the Swiss route up the Mayangdi Khola Gorge where they placed their base camp at 12,000 feet. Their next camps were established in about the same places as the Swiss: Camp 1 at 14,750 feet, Camp 2 at 16,400 feet, Camp 3 at 18,375 feet, Camp 4 at 19,700 feet, and Camp 5 at 20,700 feet. The Swiss could find no adequate campsite on the

difficult section they called the "Pear," and here it was that the Argentines put to good use a part of the 15 tons of equipment they had brought. At 23,000 feet Sergeant Godoy of the Argentine Army blasted with explosives a tent site for Camp 6. From there the climbers and five sherpas completed the ascent of the "Pear" and established Camp 7 at 24,600 feet, just under the crest of the west ridge. Alfredo Magnani and Austrian-born Gerhard Watzl with Pasang Dawa Lama (who climbed with Fritz Wiessner in 1939 to the highest point reached on K2) and his brother Ang Nyma set out on June 1, 1954, up the final ridge which they found most difficult rock climbing. A particularly hard section had to be turned on small ledges on the face itself. Finally at 5 P.M., they stood again on the summit snow ridge at 26,250 feet. Without food or tent, they dug a snow cave for a bivouac. During the night it snowed. Only 550 feet below the peak, with no apparent climbing difficulties left, possibly two or three hours below the summit, they were tempted to press onward. Reason prevailed, however, and the exhausted men wisely began their retreat. Well it was, too, since they did not arrive back at Camp 7 until nine o'clock that night. There they found the expedition leader, Francisco Ibáñez, who had badly frozen feet and had lost his crampons. In his condition, he felt he could not descend safely without crampons, so next day they descended without him. The doctor, Antonio Ruiz Berramendi, and the Chilean, Roberto Busquets, climbed up from Camp 6 and brought the injured leader down. Despite the monsoon, the expedition carried him in record time to Kathmandu, but tragically he died there in the hospital on June 30th from infected frozen feet and pneumonia. A German – Swiss expedition hopes to attack the mountain again in 1955.

Api. The veteran 71-year-old climber, Piero Ghiglione organized a very small Italian expedition which climbed Api (23,399 feet) in northwestern Nepal. However, the expedition ended in tragedy. After the four climbers had established their base camp at 13,000 feet, in the Chambia Valley, discouraged by bad weather and the difficulties of the mountain, they began their journey home. While crossing a crude bridge, Dr. Roberto Bignami fell into a mountain torrent and was drowned. The weather

improved and the climbers returned to the mountain. On June 14th, Giuseppe Barenghi, Giorgio Rosenkrantz, and the sherpa, Gyalgen, left Camp 3 at 20,175 feet for the summit, along with Ghiglione, who stopped at 21,650 feet. Clouds covered the peak as the leader returned to Camp 3. It stormed all night. Rescue attempts by Ghiglione and porters on June 15th and 16th failed, and all descended to the base camp. On the 17th, Gyalgen staggered into camp, nearly snowblind and badly frostbitten. He told how at the end of the morning of the 14th, they had reached the eastern summit of Api, which is lower than the main peak. Since Rosenkrantz was exhausted, Gyalgen stayed with him while Barenghi continued alone. After the wind had risen and he did not return, Gyalgen set out to find him. He did not climb very far because he saw one set of tracks that led to the summit and another set coming back that ended at the edge of a crevasse. Gyalgen did his best to help Rosenkrantz, but the latter's condition was so bad that they made little progress before they had to bivouac for the night in a crevasse. The next day, in the continuing storm, Gyalgen carried his sahib, who had badly frozen feet, over a third of a mile before bivouacking again in a crevasse. Rosenkrantz died during the night. Gyalgen struggled on to the high camp which had been evacuated a short time before. He then staggered on through the whole night to the base camp.

Saipal. A seven-man Austrian expedition, under the leadership of Dr. Rudolf Jonas, left Tanakpur for Northwestern Nepal in April, 1954. Their route lay through Chainpur, where they were received by the Maharaja of Bajang, who later visited them at their base camp. From Chainpur, they had to cross three 9000 to 10,000-foot ridges before reaching the Ghat Khola, which they followed to its source on the slopes of Saipal (23,096 feet). From their base camp at 13,700 feet in the cirque at the foot of the 10,000-foot south face, they immediately began their reconnaissance. The view from a 17,700-foot peak, which had the shape of the Matterhorn, showed them that the steep ice slopes and the wrongly tipped strata would preclude any attempt on the south face. The eastern and western sides of the mountain were next examined. The east ridge was ruled out because of the

steepness and the rottenness of the lower part. A spur that led to the south ridge was likewise rejected because of its rotten rock. During the reconnaissance, another mountain, 19,200 feet high, was climbed which was described as very difficult and even dangerous. They finally attacked the west ridge and established Camp 3 some 650 feet below the summit of a 21,325-foot minor summit which they called the Firnkopf. The ridge from there to the summit looked difficult but possible. At that camp, Karl Reiss fell sick with pneumonia and died on May 31st. This tragedy and the early arrival of the monsoon called operations to a halt.

Abominable Snow Man Expedition. The Daily Mail's expedition returned without having achieved their objective of seeing snow men (yeti).

Kangchenjunga. A British group in April and May visited the Nepalese side of Kangchenjunga to explore the climbing possibilities. Political restrictions increased the difficulties of the approach, which was made from the Singalila Ridge into Nepal. Base camp was on the Yalung Glacier between 18,000 and 19,000 feet. From there, they reconnoitered possible routes. A route from Paches' Grave is dangerous for the first 1000 feet and joins the ridge a mile from the summit. The Talung Saddle route was explored but not recommended. A route up the main icefall seemed best, although the upper icefall may prove difficult. A party under Charles Evans will return in 1955.

Cho Oyu. In the post-monsoon period of 1953, Austrian Dr. Herbert Tichy climbed in Northwestern Nepal five or six 20,000-foot peaks, including Kangdemur (21,259 feet). His attempt on Saipal in December failed because of supply difficulties. In 1954, the 41-year-old doctor organized a light-weight post-monsoon expedition which attacked and, on October 19th, climbed 26,750-foot Cho Oyu, the seventh highest mountain in the world which was previously tried by Eric Shipton's British expedition in 1951. Other members of the summit party were Sepp Jöchler and the sherpa, Pasang Dawa Lama, now 43 years old, who climbed to 27,500 feet on K2 with Fritz Wiessner in 1939 and nearly reached the summit of Dhaulagiri in the spring. The other member of the expedition was Dr. Helmuth Heuberger.

Makalu. The French expedition to Makalu left Jogbani on August 21st and encountered the most trying conditions on their approach to the Barun Valley because of the severe monsoon. During a very difficult river crossing over the Dubi, where a bridge had been carried away, two Nepalese porters were drowned. Base camp was finally established on September 15th at 15,900 feet on the right bank of the Barun Glacier. The transport officer, Dilli Bahadur Werma, fell sick with pneumonia there and died after a week's illness. Despite the most unfavorable weather, which prevented their attacking the main peak (27,790 feet), Jean Franco, the expedition leader, Lionel Terray, and two Sherpas reached the summit of Makalu II (25,460 feet). Other members of the group were J. Bouvier, J. Couzy, P. Leroux, G. Magnone, Dr. Jean Rivolier, and l'Abbé Bordet, geologist.

Barun Valley. In 1952 Shipton, Evans, Hillary, and I reached the Barun Glacier and descended it. Makalu was then unexplored and the lower Barun was of great beauty. We planned to return. The New Zealand Alpine Club was fired by our descriptions and gained permission and funds to send a party to the Barun Glacier in 1954. Led by Sir Edmund Hillary, it included Charles Evans and me, who had had Himalayan experience, six climbers from New Zealand, Bill Beaver, Norman Hardie, Jim McFarlane, Colin Todd, Geoff Harrow, and Brian Wilkins and a doctor, Michael Ball, from England. Three of the party were competent surveyors and completed a detailed survey of the area with three photo-theodolites.

The party approached the Makalu area by following the Arun River, then split into three groups and penetrated, mapped, and climbed in or around the Chayang, Iswa, and Barun valleys. Twenty-three peaks were ascended, nineteen of them over 20,000 feet, including Baruntse (23,570 ft.), Unnamed (22,560 ft.), Petangthtse (22,080 ft.), Nau Lekh (21,445 ft.), and three others of 22,000 feet at the head of the Barun Glacier. Makalu was reconnoitered on the north side to a height of 23,000 feet, when the illness of Hillary forced a retreat.

Early in the expedition a crevasse accident occurred in which McFarlane and Wilkins were involved. McFarlane was hurt

badly in the fall and spent the night in the crevasse, 16 hours in all. He was severely frostbitten and has lost part of his feet and fingers. Wilkins cut his way out and returned to the rescue with Hillary. The New Zealand party received great help from the California party, who were attempting Makalu at the time. We wish to express our thanks for this. They were a grand bunch of chaps and we had the happiest of times in their company.

Baruntse was an ice climb of the greatest severity and was climbed by Todd and Harrow on May 30th and by Beaver and Lowe on June 1, 1954. Six of the party crossed the mountains to the Everest valleys and so to Katmandu. Four other members descended the Arun River.

GEORGE LOWE

INDIA

Garhwal. During June and July, 1954, Gurdial Singh and Lav Kumar climbed Lama Surjang (16,860 feet) (near Niti), Point 17,550 feet, and Silakang (both on Indian – Tibetan frontier), and failed on Rata Pahar (17,220 feet) (west of Gamsali).

Lahul Himalaya. Capt. R. G. Platts and Mr. N. W. Wollaston spent six weeks in this region in August and September 1954. From a base camp in the Sissu Nala they climbed Peak 18,930 feet, eight miles southeast of Kyelang. From a 17,000-foot camp on September 4 they reached the summit of Gepang Goh (19,259 feet).

PAKISTAN

Rakaposhi. Under the leadership of Mathias Rebitsch, veteran of the 1938 Nanga Parbat and 1952 Peruvian Expeditions, six climbers and five scientists from Austria and Germany left Gilgit on May 26, 1954, for the Hunza Valley. The scientists planned to map, study the glaciology, zoology, and botany of the region, as well as investigate the nutrition and physiology of the Hunza people. The climbers had as their primary objective Rakaposhi (25,550 feet), which had already been reconnoitered by the Swiss, Gyr and Kappeler, and the Britishers, Tilman and Secord, in 1947. Thanks to these previous explorations, they entered only the Dianor Valley, which immediately seemed hopeless, and the

Bagrot Valley, where they first felt they might find a route but where avalanche danger soon made them abandon all hopes of climbing Rakaposhi. The climbers followed the scientists to the Baltar Glacier in the Tota-Uns Valley, which branches off from the Hunza Valley at Chalt. Between this valley and the Batura Glacier rise unnamed 23,000-foot peaks which the climbers compared to the Chamonix Aiguilles. They had already established their second high camp at over 20,000 feet on one of these formidable peaks and on June 24th were about to make a try for the summit when severe storms forced them back to their base. Later in the summer, they reconnoitered but failed to climb 25,886-foot Dasto Ghil. On August "th, Martin Schliessler and Adolph Mayer climbed a 25,250-foot unnamed mountain in the Batura Group. Unfortunately, Dr. Karl Heckler was drowned in a river crossing.

The Cambridge University Mountaineering Club expedition attempted Rakaposhi in July and August. They reached over 20,000 feet before being turned back off the southwest ridge by bad weather.

Karakoram. The German expedition headed by Dr. Karl Herrlichkoffer and including many of the previous year's Nanga Parbat group, which left Munich on July 29th to try Hidden Peak, returned without achieving notable results.

K2. A very strong Italian expedition under the leadership of Professor Ardito Desio and consisting of 12 climbers, 7 of them guides, and 4 scientists arrived in late May at their base camp at the foot of K2 (28,253 ft.). Bad weather hindered their operations during the first weeks of June and on June 21st they had the crushing misfortune of losing Mario Puchoz to pneumonia at Camp 2 (19,000 ft.). When the weather improved, they pushed their camps up the Abruzzi ridge along the route and in roughly the same positions as the Americans. On July 19th, Achille Compagnoni, Walter Bonatti, Ubaldo Rey, and Lino Lacedelli, with Hunza porters, established Camp 7 at 25,000 feet. They fixed about 2500 feet of nylon rope on the upper portions of the ridge. Stormy weather plagued them while they tried to supply the high camps. On July 29th four Italians left Camp 7 with the final heavy loads. Although two of the group had to return, the other

two continued to Camp 8 (25,750 feet) and found that the reconnaissance party had found a site for Camp 9 at 26,750 feet at the top of the ice ridge. This bivouac camp lay just below what the Italians found the most difficult section of the climb, an ice couloir that cut through a 650-foot band of rock and ended at the base of the summit ridge. The oxygen equipment, which was intended only for the summit pair, had been abandoned the day before half way to Camp 8. On the 30th two of the climbers descended to retrieve the oxygen while Compagnoni and Lacedelli established the bivouac. Another Italian with two Hunzas packed to Camp 8 from Camp 7. Late in the afternoon two Italians and a Hunza started from Camp 9 with the oxygen equipment. One climber had to return, but the other continued with the Hunza until night overtook them and they had to bivouac at about 26,500 feet—luckily with no ill consequences.

On the morning of July 31st Compagnoni and Lacedelli saw the pair below them and descended to get the oxygen before starting their climb to the summit. Using oxygen for the first time, they attacked the left side of the couloir in deep powder snow. For hours they worked their way up the couloir and then up the snow to the base of the final ice dome, which was defended by a big schrund. Although late in the day, they were struggling up the final ridge, often in snow to their hips, when they realized that their oxygen had given out. Still 500 feet from the top and with the summit looking very close, they continued on without removing the apparatus. Finally at 6:00 P.M. they reached the highest point, a short snow ridge oriented north–south. After raising two Italian flags and a Pakistani flag on their ice-axes and taking photographs, they turned at dusk to descend. With great difficulty and thoroughly exhausted, they groped their way in the dark down to the couloir. Suddenly one of them noticed that he was being dragged along by a snow-slab avalanche. After striking two or three times, he came to rest unhurt where he awaited his companion. While they were crossing a large crevasse, one lost his ice-axe into it. Below this, while rappelling down a 100-foot ice cliff, the first man felt the rope give way and he fell, again unhurt, into the soft snow at the base of the cliff. His companion climbed down by a roundabout

route. Finally, at 11:00 P.M., the victorious pair staggered in to their friends at Camp 8. The next morning the descent continued in gathering bad weather. While still on the snow shoulder, one climber slipped and fell 650 feet before luckily striking a patch of soft snow which prevented his plunge down the eastern side of the ridge to the Godwin Austin Glacier. The fixed ropes helped the party down to Camp 4, where they spent the night and then reached the base camp the next day, August 2nd. Professor Desio has stated that, had the climb been delayed a single day, the weather would have made success absolutely impossible. To emphasize the team-like character of the climb, he withheld the names of the summit pair until the fête given the climbers in Genoa on October 12th. Our member, Dr. Charles Houston, leader of the 1938 and 1953 American Alpine Club Expeditions to K2, was a guest of the Italians at the celebrations.

OTHER PARTS OF ASIA

U.S.S.R. A Soviet press dispatch quoted in "Die Alpen" gives a review of mountaineering in 1953 in the U.S.S.R. The sport seems to have become very popular; they claim to have 17,000 mountain climbers, many of whom participated in climbs from the 26 climbing camps in the Caucasus and the Pamirs and made mass ascents of Elbrus, Kazbek, and other peaks, on which fifty to a hundred people reached the summits. They also mention ascents of the volcanos of Kamchatka and of 20,000-foot peaks in the Pamirs but give no names. They claim one thousand climbs in the Tien Shan, including first ascents of the "Peak of the Centenary of the (Russian) Geographical Society" (21,000 feet), Mt. Grebechok (20,350 feet), and Peak Baiankol (19,030 feet). In the Altai they climbed the highest summit, Belukha (15,157 feet). They also state that they climbed 23,311-foot Peak Korgenevski. Another dispatch says that on August 17, 1954, they climbed Pik Revoljuzii (23,096 feet), one of the mountains above the Fedschenko Glacier, which was reconnoitered by a Russo – German expedition in 1938 and called "Dreispitz" by them. The Russians state that there is absolutely no truth in the story reported tentatively in the 1954 *American Alpine Journal* about a Russian at-

tempt on Mt. Everest. When Sir John Hunt was in Moscow recently to give a lecture, he received the Order of Mountaineer —1st Class.

Iran. A group of French and Iranian climbers under the leadership of our member Bernard Pierre explored and climbed in the Elburz range. They made several first ascents, including the relatively easy east ridge of Demavend (18,605 feet), which was climbed by M. Pierre, Louis Dubost, Paul Genre, Claude Maillard, François Prévost, Georges Stouvé, and two Iranians, the south ridge and east face of Chane Kuh (14,100 feet), the first west – east traverse of Alam Kuh (16,900 feet), and the first complete south – north traverse of the Takht-i-Suleiman (15,100 feet). They also made the second and third ascents of the north spur of Alam Kuh.

Turkey. A Swiss scientific expedition climbed Mount Ararat (16,916 feet) on August 15, 1954. The summit party consisted of Prof. Eduard Imhof, Leader, Prof. Emil Egli, and Dr. Hans Keller.

MOUNTAINEERING HISTORY

The Mountaineering of Emperor Hadrian. The Greeks believed that Mt. Etna was either the mountain with which Zeus crushed the giant Typhon, or the workshop of Hephaestus and the Cyclops. The later Romans had begun to explain it through natural causes. Seneca recommended the ascent, and the Torre del Filosofo, a ruin near the present observatory, is a Roman structure dating from his time *(ca.* 50 A. D.).

When Hadrian was returning from Greece in the late summer of 126 A. D., he broke the voyage at Sicily. He was then 50 years old, and Mt. Etna (10,870 ft), the highest volcano of Europe, rose before his eyes. It is more than possible that he knew of the mountain from reading Empedocles, whose reputed disappearance in the crater was legendary. Certainly he was aware of the writings of Seneca, like himself of Spanish origin. In any case, others who had preceded him to the summit spoke of the curious dawn on the Ionian sea, "a medley of many colors, like the rainbow," and Hadrian decided to see for himself. Neither science nor conquest was in his mind; he went up for no other reason

than to view the sunrise. He may have ridden a mule, but probably went at least part way on foot. We have no details; nothing but the brief passage from the historian Spartianus (*Vita* 13, 3): "Post, in Sicilian navigavit, in qua Aetnam montem conscendit, ut ortum videret arcus specie, ut dicitur, varium. Inde Romam venit."

The event seems to have confirmed Hadrian in his love of mountain climbing. Three years later in Syria (*Vita* 14, 3), he ascended from sea-level Mt. Casius (Jebel el Akra, 5318 ft.), thought to be the seat of Zeus. This may have been a first ascent, for local people never went beyond the temple at its base. Once more the emperor hoped to watch a sunrise, but was overtaken instead by a thunderstorm, lightning striking both the animal which the emperor was offering in sacrifice and the acolyte who was making it ready.

This is the last record of mountaineering until the early middle ages, when Peter III of Aragon (1236-85) climbed Pic Canigou (9135 ft.) in the Pyrenees. Curiously enough, he goes down in history as the liberator of Sicily.

J. MONROE THORINGTON

LETTER TO THE EDITOR

December 17, 1954.

Dear Sir:

Ever since Mt. Everest was determined to be the highest known point on the earth's surface, its elevation, as published by responsible and irresponsible sources, has fluctuated alarmingly from the figure computed by the authority best qualified to speak on the matter, the Survey of India.

It is refreshing, therefore, to note that in November, 1954, the Survey of India, in announcing the result of three years of careful observations from a number of stations within 20 to 40 miles of the mountain, established the official height of Mt. Everest as 29,028 feet. The probable error is considered not to exceed 10 feet.

Let us hope for wider and more permanent acceptance of this elevation than was accorded the Survey's original figure, only 26 feet lower.

Yours very sincerely,

Walter A. Wood.

Scientific Notes

JUNEAU ICE FIELD RESEARCH PROJECT, 1954

Since 1948 the Juneau Ice Field Research Project has conducted in the Juneau area a long-range program studying the relation between glacier behavior and climate. The Project has been supported by the Office of Naval Research and administered by the American Geographical Society of New York.

A major part of the work in past seasons has been concentrated on the Taku Glacier, the largest glacier draining the Juneau Ice Field, and one which has been advancing since the turn of the century. During the summer of 1954, however, a party of only four men was in the field, and all the work was done on the small Lemon Creek Glacier at the southwest corner of the ice field.

The most important part of the research program was a micrometeorological investigation of energy exchange at a melting snow surface. As well as providing essential information about weather influences on glaciers, such a study permits an evaluation of certain factors in the energy exchange between earth and atmosphere which is not possible over other surfaces. The Lemon Creek Glacier is favorably situated for the type of snow and weather conditions which make such an investigation unusually profitable. Automatic recording instruments, operated from a portable gasoline-driven generator, were used to obtain continuous records of several meteorological factors. A large quantity of data was thus obtained, the complete analysis of which will require many months.

In the course of the investigation of energy exchange it was necessary to devise a more accurate method of measuring snow

ablation. The method finally developed permits direct measurement of ablation in terms of mass loss. Though further work is required to increase accuracy, it appears that considerable improvement has been made over previous ablation measurement methods.

One of the Project members made a zoological study of the relation between certain local fauna and climate, and investigated the cryobiology of the Lemon Creek Glacier.

A thorough record was made of summer ablation and annual accumulation on the glacier. From preliminary calculations it appears that the 1954 budget was definitely positive and this year the glacier gained a substantial increment of mass. Recent records indicate that the Lemon Creek Glacier has been approximately in equilibrium for the past several years.

The 1954 season was observed to be one of unusually heavy snow accumulation throughout the Juneau Ice Field area. This is attributed to a cold and late spring. The annual accumulation on the Taku Glacier appeared to be the heaviest yet recorded since the Project has been in the field.

The Lemon Creek Glacier has been proposed as one of a world-wide selection of sites for glacier studies during the forthcoming International Geophysical Year. It is planned to have another field party working there in the summer of 1955 in preparation for the IGY, and to continue the present investigations.

EDWARD R. LACHAPELLE

THE INTERNATIONAL GEOPHYSICAL YEAR PROGRAM

An International Geophysical Year has been designated for 1957-1958 to carry on and expand to global proportions the concept of the two Polar Years of 1882-1883 and 1932-1933. By the end of 1954, 38 nations had indicated their intention of participating in this world-wide program of simultaneous observations in the principal fields of geophysics. Intensive studies are being planned in the following fields: solar activity, longitude and latitude, glaciology, oceanography, meteorology, seismology and gravity, geomagnetism, aurora and airglow, ionospheric physics, cosmic rays, and rocket exploration of the upper atmosphere.

Glaciological observations will be carried out in many parts of the world to determine the status of existing glaciers and the prevailing factors which determine their nourishment and wastage. The United States program includes observations in the western states, Alaska, and parts of the Arctic and Antarctic.

This country's scientific program is being directed by the United States National Committee for the International Geophysical Year, which has been appointed by the National Academy of Sciences – National Research Council, acting on behalf of the International Council of Scientific Unions. In turn the National Committee has appointed an Antarctic Committee and a number of Technical Panels to work out the details of the various aspects of the scientific program. Funds for the scientific work have been requested from Congress through the National Science Foundation, while much of the necessary logistical support is to be provided by the military and civilian branches of the government.

A major effort will be made in Antarctica because it is relatively so little known. Eight nations, including three members of the British Commonwealth, have already indicated their intention of establishing bases at widely dispersed points along the coast and in the interior for this first concentrated effort to uncover the geophysical secrets of the least known continent and the largest remaining unexplored area on Earth. An expedition to construct the United States coastal and inland station will be sent to Antarctica by the Navy in the fall of 1955, to be followed by expeditions of scientific personnel in succeeding years for the program of observations during 1957 and 1958. The U.S. Antarctic glaciological program will include studies of the nourishment, wastage, physical character, and extent of the inland ice and coastal shelf ice, as well as measurements of ice thickness by seismologists. These activities will be coordinated with observations to be made by American meteorologists and oceanographers, as well as by scientists of other countries. Ambitious plans have also been announced by different countries for traverses of the unknown sections of the continental ice sheet.

The International Geophysical Year program promises to be an enlightened and comprehensive effort to study important fea-

tures of our Earth and its atmosphere. It marks a significant step forward in international scientific cooperation.

WILLIAM O. FIELD

AIRBORNE FIRST AID IN THE AUSTRIAN ALPS

In 1953 the efficiency of helicopters in high-mountain rescue work was first demonstrated in the Alps on a large scale. Experience derived from that freak winter, which by reason of its unprecedented heavy snowfall produced very unusual and too often disastrous avalanches, has led to the establishment by the Austrians of an airborne first-aid unit, using helicopters as carriers. With Graz in Styria as a base for experiments in operational organization, rescue squads of 22, which include 4 physicians, have now been equipped to answer calls in any part of the country. This first-aid service will be used in cooperation with the Austrian Red Cross.

Canine star of many of these avalanche rescue operations has been the now famous Lux, trained and bred in Austria. Innumerable and grueling trials have been conducted and have conclusively demonstrated that, following a parachute leap from a helicopter, this dog will go into instant action, pick up a scent with remarkable rapidity, and track down buried victims. His record for instant obedience to a great number of complicated commands is flawless, and his amazing rescue operations during and since the 1953 avalanche season have made Lux one of the most distinguished of dog heroes.

CHRISTINE L. ORCUTT

Book Reviews

K2 — The Savage Mountain, by Charles S. Houston, M.D., Robert H. Bates, and members of the Third American Karakorum Expedition. 334 pages, 27 photographs, with map and line drawings by Clarence Doore. 7 appendices. New York: McGraw-Hill, 1954. Price, $6.00.

This book is the well written story of the third American attack on the second highest mountain in the world. Although the party did not reach their goal, which has since been attained by the Italians under Professor Desio, the story of human courage and endurance recorded in these pages will undoubtedly become one of the classics of Himalayan climbing. Together with Paul Bauer's account of the retreat down the northwest ridge of Kanchenjunga in 1931, this record of "overcoming almost impossible problems of survival will continue to give strength and encouragement to mountaineers in perils on the high peaks," to quote from the preface by William P. House.

The first hundred pages describe the careful preparation for the assault, the journey to India, and the march to Base Camp. Following this, the story unfolds until eight men are assembled at Camp VIII (25,500 ft.), ready for the final assault. At this point misfortune strikes, turning the attempt on the mountain into a bitter life-death struggle for sheer survival. A ten-day blizzard sweeps over the mountain, in the middle of which Art Gilkey develops the comparatively rare disease—thrombophlebitis—serious even at sea level. By August 10th Gilkey's condition is so desperate that evacuation is ordered, despite the continuing storm and avalanche danger. Dehydrated from days of storm that almost prevented use of the stoves for melting snow for drinking purposes, blinded by the buffeting wind, the party nevertheless

attempts to lower Gilkey down a ridge that is safe from avalanches but away from the route they had used on the ascent. Having no choice in the matter, they plunge almost blindly down the steepening ridge, belaying Gilkey on an improvised litter as they go. Almost inevitably under the circumstances, one man slipped and soon five others are pulled from their footholds and begin to slide down the mountainside.

That all but one of these men are alive and well today can only be regarded as miraculous. A clear description is given, supported by a diagram, of the now famous accident in which three separate ropes somehow became entangled with that belaying Gilkey's litter. How Schoening could hold the weight of six climbers under these conditions is difficult to understand, but he did succeed in doing so. The 7/16-inch rope stretched until it looked like a 1/4-inch line. How seven men collected themselves after the accident, treated their injured, and made camp in the continuing blizzard is told in unemotional detail that is all the more effective for its restraint. Nowhere is it explicitly stated that without the avalanche which carried Gilkey away shortly after the accident, none of them would be alive today.

Viewed in retrospect, several points are interesting to consider. The gradual deterioration of the party during their week at 25,500 feet (the height of the summit of Nanda Devi!) undoubtedly contributed to the desperate conditions of the forced descent. The partial failure of the stoves to function adequately under these admittedly extreme conditions indicates a need for further developmental work on their design. These and other technical problems are thoroughly discussed in seven appendixes by various members of the expedition. The crucial problem of the expedition, however, lay in the incapacitation of a member at extreme altitude, where evacuation was almost impossible and then only at the risk of the loss of the entire party. Indeed they would have perished here except for the providential tangling of the ropes and the subsequent avalanche that made further evacuation unnecessary.

This problem is one that future expeditions may well study carefully. No easy solution is available; each individual happening must be considered in the light of the circumstances then prevailing. Certainly the problem is not unique to climbing, for it

arises from time to time in all dangerous undertakings, whether in peace or war, and one might almost say that the weather is always at its worst when such a problem is at hand.

W. Farnsworth Loomis

K2 Troisieme expedition americaine au Karakorum. Charles S. Houston, M.D., Robert H. Bates and George I. Bell. 100 pages, including 70 full-page photographs, 10 in color and a 20-page resumé by Charles S. Houston, M.D. Paris: Arthaud 1954.

This paper-bound volume recounts the story of the 1954 expedition to K2 in a brief but moving resumé in French by Charles S. Houston, followed by a dramatic series of photographs by all members of the expedition. The accident and descent are illustrated by one sketch and one photograph taken at Camp VII.

W. F. L.

Nanga Parbat 1953, by Dr. Karl M. Herrligkoffer. 192 pages, with 78 black-and-white photographs, 9 colored photographs, maps and plans. München: J. F. Lehmanns Verlag, 1954. Price, D. M. 16.80.

Nanga Parbat, by Karl M. Herrligkoffer, translated from the German and with additional material by Eleanor Brockett and Anton Ehrenzweig. With a foreword by Brig. Sir John Hunt. 260 pages, with 56 photographs and 6 maps. New York: Alfred A. Knopf, 1954. Price, $5.00. English Edition: 254 pages, with 67 black and white photographs, 9 colored photographs, maps and plans. London: Elek Books Ltd., 1954. Price 21/—.

Im Banne des Nanga Parbat. 80 pages of photographs, with foreword by Dr. Karl M. Herrligkoffer. München: J. F. Lehmanns Verlag, 1953. Price, D. M. 7.50.

Das Buch von Nanga Parbat: Die Geschichte seiner Besteigung 1895-1953, by G. O. Dyhrenfurth. 197 pages, with 133 photographs, 2 maps. München: Nymphenburger Verlagshandlung, 1954. Price, D. M. 6.80.

The ascent of Nanga Parbat, July 3, 1953, was given comparatively few headlines in the world news. In spite of its being the highest mountain ever climbed and most frequently attempted,

except Everest, and in spite of its spectacular history, its story was completely overshadowed by the Everest conquest.

But in Germany that final victory on the "Mountain of Fate" was a tremendous event. For the Germans, Nanga Parbat had always been "our mountain," from the days of the Deutsch-Amerikanische Himalaya-Expedition of 1932 (which trip, by the way, with Rand Herron and Fritz Wiessner as important members, was the first major climbing expedition to include Americans). The '53 attempt received great attention, from the beginning, and its success was welcomed with floods of material in all the German newspapers and periodicals. Now the books are beginning to appear.

Among them, Herrligkoffer's volume in German contains the fullest account of this last expedition. Herrligkoffer, half-brother to Merkl, the '32 and '34 leader who died in the '34 disaster, was its original organizer and leader, and called it the "Willy Merkl Memorial Expedition." He himself, however, was not a climber —a fact which was a main cause of various difficulties his book refers to, in his relations both with climbing groups in Germany and with expedition members. Peter Aschenbrenner, the famous Austrian guide and member of the '32 and '34 expeditions, was taken as the climbing leader.

From the start, the party had to struggle with typical porter problems. Arriving in Pakistan, they learned that the Sherpas already engaged would not be admitted to the country. Hunzas were collected in haste and caused more or less trouble all summer. They were, however, kept working with at least some degree of regularity, and finally several were brought as high as Camp VI on the East Ridge—thanks to their masterly handling by Frauenberger, known as "the good Sahib."

The most unusual and fascinating part of this book is Hermann Buhl's own story of his 40-hour solo climb to the summit and back to Camp VI. An amazing and almost incredible tale of a combination of strength, endurance, and good luck, it is told very simply, and to this reader carried complete conviction. The climb was made practically without food and without extra clothing, and included a night out, spent standing on a rocky shelf at over 26,000 feet.

Among the various causes of this extraordinary performance

were disagreements between Herrligkoffer and some of the climbers, with mutual recriminations which continued for some time in the public press in Germany. But, says Herrligkoffer, in a few years all that will be forgotten. What will be remembered is the German victory and the remarkable solo ascent of Hermann Buhl "which will probably remain unique." And indeed it seems likely! . . .

The story is thoroughly covered, and occasional extracts from the accounts of other party members add interest. Some of the colored photographs are particularly beautiful.

The American edition is not merely a translation, but a different version. There is much additional material, with a third of the book given to the earlier expeditions, beginning with Mummery's. Herrligkoffer's story is frequently cut or rearranged, generally to its advantage, and several more quotations from the accounts of the other climbers are inserted. The translation is sometimes awkward, and has minor inaccuracies. But it does correct several mistakes in dates made in the German edition and in Dyhrenfurth—especially the use of June 30th as the date of the beginning of the 1932 attack, which actually began on June 24th. The photographs were apparently selected for dramatic or human interest, more than for mountain beauty, and are all in black and white.

A new appendix contains a valuable discussion of the problem of the use of Hunza porters, also considered in Dyhrenfurth's book—an important question for future expeditions to the Western Himalayas. Both this volume and Dyhrenfurth's reach the conclusions—borne out by my own observation and experience, and apparently also by the American '53 K2 Expedition—that because of their particular temperament and attitudes, the Hunzas need very special treatment, but that given such treatment, they respond well and have good possibilities as mountain porters.

The English edition has practically the same text as the American and is only less carefully edited, but in format it is closer to the German, including the nine colored photographs.

Im Banne des Nanga Parbat is a book of beautiful photographs in black and white.

Dyhrenfurth's small book covers clearly and dramatically the

complete history of Nanga Parbat, with an evaluation of its climbing problems and interesting discussions of its disasters and their causes. It is a very satisfactory little volume.

Reviewing again the tragic and sensational story of this fine mountain, one cannot help thinking of the observation—that the best planned and organized expeditions are the ones least likely to have spectacular adventures.

Elizabeth Knowlton

Une Montagne Nommée Nun-Kun, by Bernard Pierre. Preface by Sir John Hunt. 199 pages, 15 photographs, 5 sketch maps. Paris: Amiot-Dumont, 1954.

This book describes the 1953 French expedition which effected the first ascent of the Nun-Kun, a handsome peak rising to 23,410 feet, some 60 miles east of Srinagar in Kashmir. Its ascent was a notable feat and Bernard Pierre's book is a worthy description of the adventure. The style is straightforward but always interesting. The five sketch maps are excellent and enable the reader to locate and follow the course of action with precision at all times. The photographs complement the story nicely and several are quite extraordinary.

The courage and perseverance of the party and their leader in the face of prolonged bad weather and even after having been carried nearly a thousand feet in an avalanche, are much to be admired. To learn that Claude Kogan was one of the two to reach the summit comes as no surprise to those who know her.

George I. Bell

La Conquête du Fitz-Roy, by M. A. Azéma. 8vo., 225 pages, with 16 photographs, maps, diagrams, and sketches. Paris: Flammarion, 1954. Price, 600 Fr. francs.

The ascent of Fitz-Roy in 1952 ranks with the great Alpine north-face climbs of the 1930's. The ascent is the more remarkable because of the remoteness of the area and the difficulty of the climbing involved. Fitz-Roy had been tried previously by various European parties; the successful French party was prepared for a difficult time and, in most respects, had one. One climber, Jacques Poincenot, was lost in a freak stream-crossing

accident which is worth noting. A guide rope was stretched across the river and anchored to either bank. Poincenot was attached to the rope by a carabiner. He lost his footing, pulled loose one end of the rope, was swept downstream and down to the loose end of the rope. He could not unsnap the carabiner in time, and drowned.

From a climber's point of view, the "official" account of the expedition is Terray's account, "Die Eroberung des Cerro Fitz-Roy," which appears in *Berge der Welt* for 1952 and contains a straightforward presentation of the relevant facts. Dr. Azéma's book is intended for a wider audience but is more difficult to read because of its rather patchwork style. There are also some minor manuscript and printing errors. Whether or not one has read Terray's account, the effort of reading Dr. Azéma's book is well worthwhile, chiefly for frequent passages of very beautiful writing, some where the beauty is due to the French language and some where it arises from Dr. Azéma's own gifted expression. The general description of Patagonia is a masterpiece of style. The account of the summit climb is both exciting and free from the distressing clichés of understatement or overstatement which mar so many accounts in the first person. There are some post-Everest apologetics addressed to the lay public. Not much detail is found regarding personalities involved, but there is some interesting content about matters to which mountaineering literature has yet to do justice, a candid report of the thoughts of a climber frustrated in his desire to be one of the summit party. The reader is made to feel how complex some apparently simple decisions are and how morale can fluctuate radically even among good climbers.

In general, Dr. Azéma makes the reader feel that, though Fitz-Roy is less than half as high as Everest, men were pushing some sort of limit before "Pour la première fois, les harpes du Fitz-Roy ont vibré sous les doigts des grimpeurs."

David Harrah

Manaslu 1952-3, by members of the Japanese Manaslu Expeditions. 217 pages in Japanese, 17 pages in English, with 124 photographs, 4 sketch maps, and 13 illustrations. Tokyo: The Mainichi Newspapers, 1954.

During the past three years, Manaslu has quickly gained the status of a "Japanese" mountain: Japan's bid for an eight-thousand meter peak. This year, with a bigger, more experienced, and better equipped expedition, Japanese climbers would most certainly have claimed Manaslu's summit but for the belligerance of local Nepalese tribes, which forced the expedition's diversion to Genesh Himal. The stories of the first two expeditions, the 1952 reconnaissance and the 1953 assault, are now recounted in diary form by members of the two teams. Three men of the 1953 assault party succeeded in pushing their way to 7,750 meters, only 350 meters from the top, before they were forced back by weather conditions and exhaustion. Judging from translations given the reviewer by Japanese friends, the subjective approach of the Japanese to mountaineering, as expressed here, possesses a lyric quality characteristic of their art and literature and somewhat resembles European accounts at about the beginning of the century.

The appendix will particularly interest devotees of Himalayan expeditions. It comprises more than half the text and describes in detail their equipment, food, planning, and botanical collections. It also includes a complete chart of movements of men on the mountain, several maps, and lists of equipment and food—complete to "Japanese fan" and "salted squid." The 124 photographs are good in any language, but the reader will need a command of Japanese for the rest of the book. English is used only in a brief account of the two expeditions, a list of photographic captions, and the food and equipment lists.

William Siri

The Mountain World 1954, edited by Marcel Kurz for the Swiss Foundation for Alpine Research. 224 pages, with 64 illustrations, 9 maps, and three sketches. New York: Harper and Brothers, 1954. Price, $6.00.

The Mountain World is a most interesting and useful summary of articles on mountaineering done recently in various parts of the world, principally in 1953. In a year so notable for climbing on the earth's highest peaks, it is only natural that three-quarters of the volume is devoted to Himalayan mountaineering, with

one-quarter on the ascent of Mt. Everest itself. There are articles of particular interest for Americans, especially Dr. Charles Houston's well written account of the expedition to K2 and, in Marcel Kurz's "Himalaya 1951-1952" (the only portion of the book not covering mountaineering in 1953), the summary of Robert Dodson's climbing on Sugarloaf in Sikkim, the Houston Expedition to Mt. Everest, and the French on Nanda Devi. The latter will catch the attention particularly of those of us who were on the mountain in 1936. The thrilling photograph taken by the Poles from the summit of East Nanda Devi, looking toward the main peak along the ridge they hoped to traverse, merely strengthens the reviewer's belief that this was no practicable route.

In a book written by numerous authors and originally in various languages the style could indeed be varied or poor. This is for the most part not the case. Wilfred Noyce's "Everest 1953" and Ruedi Schatz's "Expedition to Dhaulagiri 1953" are written with real literary competence. The latter article does not give the impression of being a translation. "The Ascent of the Nun" by Pierre Vittoz is particularly enhanced by references to spritely conversations with the Sherpas, recounted by someone who apparently knows their language perfectly, can catch their delightful humor and light spirit and even encourage it. More pedestrian but still of great interest are the accounts of the Germans and Austrians on Nanga Parbat, the Japanese on Manaslu, the Swiss in the mountains of the Arctic, and Busk on Ruwenzori. Only in the Arctic accounts did the translator fail to give us flowing, idiomatic, and, in a few cases, grammatical English.

The volume has a very attractive format and is well printed. The numerous photographs, seven of which are double paged, are exceptionally good to begin with and are excellently reproduced. There are also several interesting maps. The "Chronology of Himalayan Expeditions," found at the end of the book, is a very useful continuation of the table which records all known ascents in that part of the world.

Although this is only the second edition in English of this useful book, readers of German and French will recall that this is actually the ninth edition. The book is now published in

Switzerland, France, Germany, Italy, England and the United States.

H. Adams Carter

Our Everest Adventure, by Sir John Hunt. 128 pages, including 103 large photographs, numerous small photos, and 2 maps. English edition: Leicester, Brockhampton Press, 1954. Price, 12/6. American edition: New York, E. P. Dutton & Co., 1954. Price, $3.75.

This account is a very satisfactory abbreviation of the more detailed book. It begins with the march in to Khumbu and the oxygen rehearsals, instead of with the earlier organization and planning. Print occupies a minor fraction of the space on its 128 pages, most of which are taken up with pictures. The most notable of these are the photograph of a model of the *massif* from an angle which shows all of the route and Lowe's route-marked photograph of the Lhotse face.

Robert M. Ormes

South Col, One Man's Adventure on the Ascent of Everest, 1953, by Wilfred Noyce. 303 pages, 5 maps, 4 colored plates, 71 photographs, and 16 drawings. Melbourne, London, Toronto: William Heineman Ltd., 1954.

In this interesting and well written book Wilfred Noyce carries up Everest as far as the South Col and lets us live the climb with him and see everything as it happened through his eyes. We feel his hopes, aspirations, joys, and disappointments. We suffer with him hunger, thirst, and the monotony of a high-altitude diet. We plod up endless snow slopes and know what it is to lack oxygen. We feel the peace and contentment that living and striving upwards in the high mountains brings. We find ourselves a member of the team and get to know our climbing companions. We gain deep affection for the faithful, happy, and lovable Sherpas and even catch a whiff of the unmistakable Sherpa odor. This is what Wilfred Noyce succeeds in giving us. The volume is no official account of all the details of the expedition; for that we have already seen Sir John Hunt's admirable book. The sum-

mit climb, for example, is indeed recounted, but it is seen as Noyce saw it, awaiting Hillary and Tenzing on the South Col. The format is excellent. The many fine photographs are well reproduced. A. J. Veilhan's drawings well catch the spirit of the climb. Here is a book well worth reading and owning. If you have been in the Himalaya, it brings back pleasant moods and memories; if you have not, it lets you imagine that you have.

H. Adams Carter

Alone to Everest, by Earl Denman. 255 pages, 13 photographs. London: Collins, 1954. Price, $2.38.

An Innocent on Everest, by Ralph Izzard. 318 pages. New York: E. P. Dutton & Co., 1954.

When some great achievement, book, or play, has attracted great public interest and acclaim, one may expect a spate of works of lesser merit on the same subject. These two books fall within this category. However, anyone who wishes to read everything that has been written about Everest will want to read them.

Mr. Denman's book is divided into two parts; the first is an account of the ascent of eight volcanic peaks of the Virunga range. This is the area of equatorial Africa in which Carl Akeley studied gorillas and has now become the Albert National Park, a game preserve intended primarily to protect the animals. The author made all his ascents accompanied only by local porters and at a minimum of expense, thus carrying the doctrine of the "small expedition" to its logical extreme.

The remainder of the book is devoted to his expedition in 1947 from Darjeeling, following the route of the earlier British expeditions through Tibet to the Rongbuk Monastery and thence up the glacier to the North Col. At Darjeeling he was fortunate in securing the services of Tenzing (later one of the conquerors of Everest) and Ang Dawa. He had no permission to enter Tibet, so the expedition had to proceed secretly. With the exception of one threatening encounter, however, he was not interfered with and, accompanied by his two able sherpas, succeeded in getting part way up the North Col and returning safely to Darjeeling. The book contains much rather naive alpinism and even more naive philosophy, but it has an interest as a

demonstration of what one man without help or money can do if he has sufficient determination.

Mr. Izzard is a reporter on the staff of *The Daily Mail.* The 1953 British Mount Everest Expedition had sold exclusive rights to the story of the expedition to the London *Times* and the competitive spirit of journalism inspired *The Daily Mail* to send Mr. Izzard to "gate-crash" the trip. With a hastily organized scratch party, he trailed the Hunt expedition from Katmandu to the Khumbu glacier at the foot of the icefall and then returned to Katmandu while the expedition was at the higher altitudes on the mountain. He supplied *The Daily Mail* with very readable articles from time to time on the way up and down, and apparently succeeded quite well in "scooping" the *Times'* exclusive story. The book has all the merits and demerits of journalism. It is written with a facile pen and dwells particularly on personal adventures and human idiosyncracies. It repeats all the standard statements about the people and the country, and sometimes makes categorical statements on questions which have been the subject of debate for years.

The ninth chapter is devoted to a review of all that has been said and written about the Abominable Snowman. Since the book was written, Mr. Izzard in 1954 headed a second expedition to the Everest area on behalf of *The Daily Mail,* to pursue the Abominable Snowman to his ultimate lair. This doubtless presages a second book.

Oscar R. Houston

Everest: The Swiss Expedition in Photographs, compiled by the Swiss Foundation for Alpine Research. XV pages of Introduction, 6 plates in color and 144 full page illustrations in black and white, and various sketches. New York: E. P. Dutton & Co., 1954. Price, $7.50.

The Picture of Everest, by Alfred Gregory. 43 pages of colored illustrations with brief explanatory text. Great Britain: Hodder and Stoughton, 1954.

Since the recent improvements in photography and the reproduction of photographs, it has become customary to publish a picture book of every important expedition (sometimes two of

them) in addition to the complete book on the expedition. This is an excellent idea. There is much truth in the saying "One picture is worth a thousand words," and the reading public can get a much better and more accurate conception of the Himalayas from a book of pictures than from any number of texts. Next to seeing the mountains yourself comes a good color photograph.

Both of these books are excellent and to be recommended to any mountain lover. The Swiss account is much more complete and, to this reviewer, the choice of subjects is more interesting. The six color plates are magnificent—the sunset on Everest, in particular, is breath taking. It may be regretted that more of these plates have not been reproduced, but limitations of cost presumably prevented. The superiority of color over monochrome is well illustrated by the portrait of Ang Pembi which appears in monochrome as No. 8 in this book and in color in Everest 1932 by André Roche, at page 28.

The British book is all in color. Opposite each color plate is a printed page giving an explanation of the plate—an arrangement that is new to this reviewer and very helpful in understanding the pictures. The whole panorama of the long and arduous ascent is admirably shown, as well as the stupendous scale of these mountains.

O. R. H.

Arctic Bibliography: Prepared for and in cooperation with the Department of Defense under the direction of the Arctic Institute of North America. Four Volumes (to date). (Obtainable from the Superintendent of Documents, Washington 25, D. C.), 1953-1954. Price, $17.50 a set. 9¼ x 5¾ inches.

To the person who seeks to broaden his knowledge of a geographical area, be he layman, scholar, industrialist or scientific investigator, the most important tool at his command will be the writings and findings of those who have studied the region. Until, however, references to source material can be brought together to form a bibliography, the student's lot will not be a happy one, for he will be forced to depend upon the coverage of accessible collections to supply his needs. Inevitably, serious gaps will occur, his patience will suffer, and his search will be incomplete.

Happily, so far as the arctic and subarctic regions of the earth are concerned, the Arctic Bibliography provides a tool that can only be appraised in superlatives. Undertaken in 1947 by the Arctic Institute of North America, under the direction of Miss Marie Tremaine, and with funds provided by the United States Army, Navy, and Air Force, compilation of the Arctic Bibliography had, by the end of 1954, resulted in four published volumes. Annual supplements are scheduled for appearance in 1955 and 1956. Some impression of the magnitude of the work may be formed from the fact that the four available volumes present a total of over 6000 pages which contain 27,600 references to published works—a monumental accomplishment.

The material is presented in two major categories: (1) an alphabetical register under the author's name, of his publications, and to each of these an abstract of the contents is appended, (2) a subject-geographic index to all significant topics referred to in the alphabetical register. Finally, each volume contains a map upon which the entire area of interest is subdivided into 69 sections for indexing purposes. Thus, author, subject, and area are inter-related, and the task of the consultant made simple and direct.

The Arctic Bibliography is the most detailed and extensive area bibliography ever produced, and so far as its geographical limits permit, no one can fail to benefit from its contents. The Armed Services which supported its compilation and publication, and the Arctic Institute which produced the result, cannot be praised too highly for their vision and performance.

Walter A. Wood

La Barre des Écrins, by Henri Isselin. 229 pages, with bibliography, 2 orographic maps, 2 sketches, and 18 photographs. Paris & Grenoble: Arthaud, 1954.

Henri Isselin says in his preface that his book is just a tale of the many ties which bind men to one of the great Alpine summits. To him "a mountain summit is not just a topographical accident, remarkable only by its form or color. A feeling very akin to friendship rises within us when we see in the distance the silhouette of a peak to which we are bound by memories of the most

worthwhile hours in our lives. Thus a very personal relationship is established between a climber and an individual mass of snow and rock."

The reader feels throughout this very comprehensive and precise book that it is written with the single-minded passion of a man who loves a mountain. It is an admirably complete study of a great peak. The discovery of the Écrins, its geographic position, its early and later conquerors, its ridges and faces, the various routes and their variations are described with great precision and, wherever possible, with dry humor. For lovers of the Dauphiné the book should prove of special interest, but everyone will enjoy the first chapter about its discovery and its first hardy pioneers. La Barre des Écrins is illustrated by unusually beautiful photographs, mostly by the author himself.

Ursula Corning

Étoiles et Tempêtes, by Gaston Rébuffat. 146 pages, 37 photographs, 6 sketches. Paris: B. Arthaud, 1954. Price, 850 Fr.

"A guide loves difficulty, but detests danger. . . . Great dreams are better than souvenirs. . . . In climbing, one's companion is as important as one's goal. . . . Wind, snow, and cold are not the climber's enemies, merely his obstacles." With such bits of his philosophy, this great Chamonix guide sprinkles his descriptions of the most hair-raising routes in the Alps. The lad from Marseilles who found that he had such a passion for mountains that he had to make them his whole life fairly bubbles over with the joys of the career he has chosen — "the most beautiful of professions."

Six great north faces provide the scene for this series of grim mountaineering struggles. The unavoidable bivouacs and "the bad weather that always seems to pair with great enterprises" provide the title. There is a modesty throughout that is sure to please the Anglo-Saxon reader. Rébuffat in one account describes with admiration the performance of a Dolomite guide whom he is content to follow; in another he mentions a slip held by his tourist, while in all he pays full respect to the pioneers who blazed these trails, often laying down their lives in the process. No knowledge of French is required to enjoy the numerous

photographs by the author and the sketches indicating these famous routes.

Roger S. Whitney

The Age of Mountaineering, by James Ramsey Ullman. 352 pages, 24 photographs, 6 maps and sketches. Philadelphia and New York: J. B. Lippincott Co., 1954. Price, $6.00.

Banner in the Sky, by James Ramsey Ullman. 252 pages. Philadelphia and New York: J. B. Lippincott Co., 1954. Price, $2.75.

These two books greatly strengthen Mr. James Ramsey Ullman's position as America's best known and most popular writer on mountaineering. While many of our mountaineers have written occasional books about their own exploits and specialized works on the subject, Mr. Ullman is perhaps the only American author whose specialty is mountaineering, both in fiction and non-fiction.

The Age of Mountaineering is undoubtedly the most important of all Mr. Ullman's books. In it he tells the story of man's conquest of the world's high places, from Paccard and Balmat on Mount Blanc in 1786 to Hillary and Tenzing on the summit of Mt. Everest in 1953. The book does not pretend to be an exhaustive history of mountaineering. Rather, it is a lively running account of the classic events that have made mountain climbing such an adventurous and fascinating pursuit and is frankly slanted more for the general reader than for the already converted mountaineer.

More significant than the accounts themselves is the underlying philosophy which permeates the entire book. "Mountaineering," Mr. Ullman says, "is not merely a story of the conquest of mountains, but of the conquest of fear. It is not merely a record of stirring deeds, but of a great adventure of the human spirit." That is Mr. Ullman's basic theme and with it he nearly succeeds in answering the question: Why climb mountains?

The Age of Mountaineering is based upon *High Conquest,* published in 1941, with interpolations and additions carrying the story of mountaineering through the post-war years to the climbing of Mt. Everest. Some may feel that Mr. Ullman's enthusiasm for the world's greatest peaks and the more spectacular climbs has led him into a lack of balance in the history of moun-

taineering as a whole. For instance, he devotes 140 pages to the Himalayas and seventeen to Mt. McKinley alone, while dismissing the Canadian Rockies, Selkirks, Purcells, Cariboos, and Coast range in a scant four pages. The three snowcapped massifs of Africa are allotted twelve pages, only two less than all the ranges in the United States put together. And the oft-told Matterhorn disaster has a 21-page chapter to itself.

A few may wish that Mr. Ullman would move his bergschrunds from below his icefalls to their proper place and brush up a bit on terminal moraines. Westerners might hope that in the future he will give the correct altitude of Mt. Whitney, our highest peak. A raised eyebrow here and there will greet the statement that 29,141 feet is the "corrected altitude" for Everest, but no one will quarrel with the apocryphal story that a lowly computer in the Indian Trigonometrical Survey Office announced the discovery of the world's highest mountain. Although untrue, it has become a legend.

These things are merely flyspecks on a vast canvas. In general, the reader has little time to note them as this nimble climber-writer takes him up and down his favorite mountains with a dash and verve for which we can forgive the author much.

Entirely different is *Banner in the Sky,* a boy's book about a boy who yearned to climb a great impregnable peak called the Citadel. The story to some extent follows the actual first ascent of the Matterhorn. The date, 1865, is the same; the imagined town of Kurtal resembles Zermatt; the boy's name, Rudi Matt, is derived from the great Swiss mountain, and Captain John Winter is easily recognizable as Edward Whymper.

In many ways the book is a more successful piece of mountaineering fiction than *The White Tower.* The peak is more convincing, the story is more appealing, and the motives of the characters are less involved. Mr. Ullman skillfully instills his narrative with the same breathless suspense that made *The White Tower* a best seller and, although *Banner in the Sky* is listed as a juvenile, grown-up climbers and non-climbers alike will find it one of the best books of mountaineering fiction yet written.

This book, too, follows Mr. Ullman's strongly persuasive theme that the love of mountains is a way of life—perhaps the most rewarding and satisfactory way there is. This philosophy impreg-

nates all his writing and might be called the essence of "Ullmanism," if we may use that word. In closing *The Age of Mountaineering* he says: "The mountains way may well be a way of escape—from turmoil and doubt, from war and the threat of war, from the perplexities and sorrows of the artificial world we have built ourselves to live in. But in the truest and most profound sense it is an escape not *from* but *to* reality."

Weldon F. Heald

Blazing Alaska's Trails, by Alfred H. Brooks, with foreward by John C. Reed. XXI, 528 pages, 113 photographs, 3 diagrams, folding table, and 4 sketch maps. University of Alaska and The Arctic Institute of North America, 1953. Price, $4.50.

An important contribution to Alaskan literature has appeared in the book *Blazing Alaska's Trails* by Alfred Hulse Brooks, published jointly by the University of Alaska and the Arctic Institute of North America. It consists of 27 chapters written between 1914 and 1922, which cover a variety of subjects of geographical, historical, and economic interest. Collectively they portray, as John C. Reed in his Foreword aptly puts it, "an interpretation of major importance and lasting value of the Alaska of 1920 and . . . a prerequisite to an understanding of the Alaska of today and in anticipation of the Alaska of tomorrow."

Dr. Brooks knew Alaska as few men could. He was widely acquainted and numbered among his associates many "old timers." He began his work there in 1898 for the U.S. Geological Survey and until his death in 1924 made 24 visits, an average of nearly one per year, and this was before the day when Alaska was only a few hours' flight from continental United States. Beginning in 1903 he was in charge of all Geological Survey work in the Territory. His great trip of 1902, which he describes as "an exploration of the largest unexplored area in southern Alaska and the running of a traverse to the Yukon," extended from Cook Inlet across and along the Alaska Range on the northern side of Mt. McKinley. It established the position and altitude of that highest of North American peaks and resulted in much of the nomenclature of that portion of the Alaska Range. Brooks loved the mountains and glaciers. Readers will recall his splen-

did publication, "The Mountains of Alaska," issued by The American Alpine Club in 1915 as the third in the series entitled Alpina Americana.

The search for and evaluation of mineral resources was, however, his primary concern through these years, and it is therefore the chapters dealing with American exploration, the gold rush, and the mining industry which the reviewer found to be the most interesting and unique, because the author played a major part in those phases and witnessed many of the major events which he records.

His picture is that of an Alaska far removed from its present position of strategic importance in the affairs of the North Pacific and the Arctic Regions. It was the period when travel in most of the interior was limited to dog teams in winter and water transport or pack train in summer. He witnessed the building of the Alaska Railroad, a single slender line of communication to the interior, but still to come were the present great highway system, the bush pilot, and the network of airways. It was an Alaska that some of us glimpsed in the 1920's, which should be understood in order to comprehend the changes brought about in the 1940's and 1950's, the struggle for statehood, and the tremendous power and industrial developments which are envisioned.

William O. Field

A Treasury of Mountaineering Stories, edited by Daniel Talbot. Pp. xii, 337. New York: G. P. Putnam's Sons, 1954. Price, $5.00.

As the literature of mountaineering becomes richer with the ever broadening interest and participation in climbing, it is inevitable that new views and new material will evoke new anthologies. And, as in the past, each will have its special merits. Such is the case here, for this collection, edited by Daniel Talbot, is distinguished from other recent anthologies in that it includes only stories—"diversified mountaineering stories to be read for pleasure." On the whole the selection is quite successful. The stories are certainly diversified and offer pleasant entertainment to readers of varied tastes. In character they range from narratives of actual occurrences to tales of imaginative realism, fan-

tasy, and even burlesque. Moreover, the mountaineering aspects are for the most part recognizable to mountaineers.

Some of the stories are better than others. In what respect? I have endeavored to answer this question for myself and I offer the result for the benefit of those who like an argument. The ratings expressed in the following list are impressions, on the basis of 10 for the best in this particular collection.

		Literary Quality	Mountaineering Interest
6. Boyle	Maiden, Maiden	10	10
17. Montague	Action	10	10
2. Wells	Little Mother Up the Möderberg	10	9
18. Bruhl	The Great Match	8	10
4. Stifter	Rock Crystal	10	7
8. Knowlton	A Petite Première in the Mont Blanc Massif	8	9
11. Bottome	A Splendid Fellow	9	8
15. White	Climbing for Goats	10	7
19. Mummery	The Matterhorn	7	10
1. Hopkinson	Mountain Madness	8	8
3. Ullman	Top Man	8	8
14. Frison-Roche	Their Kingdom	8	8
9. West	The Ascent	8	7
10. Ervine	The Mountain	8	7
16. Bates	Wailing Precipice	8	6
5. Lidin	Glaciers	7	5
12. De Maupassant	The Inn	9	2
7. Todd	Over the Mountain	6	4
13. Young	The Stream	5	1

Well, what is your opinion?

FRANCIS P. FARQUHAR

Living Dangerously, by F. Spencer Chapman. 253 pages, with 28 illustrations and 4 maps. New York: Harper & Bros., 1953. Price, $3.00.

This book is short, well-written, and full of brief anecdotes of adventure, which can be enjoyed even if read separately. The preparation for and ascent of Chomolhari and the author's several climbs in Sikkim are the only mountaineering entries and lack the high adventure of the rest of the book. The chapters dealing with Greenland Eskimos, their hunting and their kayaks, and with Chapman's adventures in Malaya are excellent indeed. It is remarkable that this man is alive. Besides some uncanny luck, his survival apparently is due to his adaptability to adver-

sity, in addition to his fantastic powers of physical endurance. This reviewer once tried to match a Chapman feat—trekking in Sikkim from Lachen to Gangtok, a distance of 60 miles through and across the roughest of Himalayan gorges, with a full rucksack, in 24 hours—and gave up after 20 miles. For those who enjoy adventure, this book is excellent reading.

Robert H. T. Dodson

Die Weltalte Majestät (The Struggle for the Gross Venediger), by Oskar Kuelken. 8vo., 317 pages and 54 illustrations, 14 sketches and maps. Salzburg: Verlag "Das Bergland Buch," 1950. Price, $4.00.

An almost forgotten phenomenon of Alpine history is the curious linking of certain guides and amateurs in the quest for a single peak, drawing them as if with magnetic attraction toward one summit, to the exclusion of any other. Just as Paccard and Balmat became enamoured of Mont Blanc, Whymper and Carrel strove for the Matterhorn; Spescha set his heart on the Tödi and the brothers Meyer sought the Jungfrau. In a broad sense they were men before whose eyes one mountain stood alone as the ultimate goal, but it is seldom remembered that these adventures had their counterparts in the Eastern Alps. Cardinal Saln and his companions had no thought beyond the Gross Glockner, while Archduke John of Hapsburg, Dr. Gebhard, and Joseph Pichler stood spellbound before the Ortler. It remained for Joseph Rohregger, a peasant of the Salzach valley, to link his existence with the Gross Venediger, the legend-surrounded snow mass which Ignaz von Kürsinger would later call "Die Weltalte Majestät."

Here is interpolated history: the life-pageant of Paul Rohregger. With him began a youthful dream, leading to solitary excursions above the snowline, long before mountaineering was reckoned a sport. This man, along in 1810, crossed the Kleine Venediger to the saddle below the greater peak, fog and a bergschrund forcing him back. Archduke John saw the mountain from the summit of the Ankogel in 1926 and, two years later, selected Rohregger to be his leading guide in an attempt by the formidable northwest face, which ended with Rohregger's nearly

fatal slip in a small avalanche near the summit. But success was yet to be his. In 1841, when he was almost seventy, he, with Kürsinger, Spitaler, and others, made the first ascent.

A remarkable sequel took place on September 2, 1930, when Rudolph Graf von Meran, Archduke John's grandson, stood on the summit of the Venediger with Alois Rohregger, grandson of the pioneer guide.

The book is illustrated with a fascinating collection of old prints and portraits.

J. Monroe Thorington

Tyrolean Journal, by C. Henry Warren. 8vo., 190 pages, with 33 photo-illustrations, chiefly by the author. London: Robert Hale, Ltd., 1954. Price, 16/—.

Warren is the author of country books, of which *England Is a Village* is the best known. He has now recorded a year spent in the remote Austrian village of Ehrwald, north of the Fern pass on the road from Imst, in the Inn valley, to Garmisch-Partenkirchen. Having the farmer's mind, he is more interested in things at eye level or below, than in mountain heights. His narrative is related to the seasons: The Golden Fall, Nothing But Snow, Release into Spring and Alpine Summer. The village he has chosen has lost its fundamental economic activity; all its crafts (iron, weaving, woodcarving) have diminished or vanished, and the only future is in the ski-tourist industry, which may eventually solve the problem. At present, however, there is poverty based on limited crops of potatoes and hay, without rotation or replacement, in contrast with the nearby Inn valley, where they bring in maize, wheat, rye, apples and apricots, potatoes and sugar beets. But the Tyrolese, even in need, are unable to do anything without a touch of poetry, and the customs, celebrations, and superstitions form an entertaining part of the description. The nearby range of the Wetterstein (Zugspitze) suggests a Nibelung opera: "It is rugged, mighty, overbearing; beautiful, of course, but not in the least endearing. Its great limestone face is full of treacherous fissures. The weather boils in it like a cauldron. It can strike terror, and yet, on a calm day, at sunset or by moonlight, it can be so magical that it catches the breath."

The book is written with a certain charm, but a year in Austria was insufficient to perfect the author's spelling of German names; and it is as incorrect to speak of *the* Tyrol as it would be to use the definite article before New York.

J. M. T.

Venezia Tidentina. 4to., 240 pages and 422 illustrations from photos, 4 in color, and one map. 17th of a series of 19 (Attraverso l'Italia). Touring Club Italiano: Milan, 1951; 2nd edition 1952. Price, L. 2000.

Sicilia. Similar in format; 4th of the foregoing series. 256 pages and 390 illustrations from photos, 4 in color and one map. Price, L. 2000.

The first of these is important to mountaineers since it covers the Brenner route north of the Lake of Garda to the Austrian frontier and includes the main chain from the Ortler to the Dreiherrenspitze, as well as the subsidiary groups of the Lombard Alps (Adamello, Presanella, Brenta) and the Dolomites of South Tyrol. It is a picture book of vast concentration, giving in small space a great impression of this interesting province. The Italian names, in some instances, still have an unfamiliar ring, and the northern portion has not yet lost its Austrian cast.

The second book is mentioned chiefly because of its connection with Mt. Etna, but it is also a revealing summary of the beauty of this southern island, with its Greek, Saracen, and Norman remains indicative of past struggle for the granary of Europe and the successive civilizations which played their part in past centuries.

J. M. T.

Das Berner Oberland, by Adolph Schaer-Ris. 4to., 130 pages, including 60 pages of photo-illustrations, together with sketches by Victor Surbek. Berne: Urs Graf-Verlag, 1952. Price, Sw. Fr. 19.35.

This is the seventh in the series, reviewed earlier, of Swiss cantonal description, issued under the general title of "Das Volk-

serbe der Schweiz." The Bernese Oberland comprises a large and diverse territory, and it remains only to say that the present volume is one of the most attractive. It covers Oberhasli, the Lüschinen, Kander, and Saanen valleys, as well as the lakes of Brienz and Thun.

J. M. T.

Romantic Switzerland, by Walter Schmid. 8vo., 50 pages, including 20 color plates from old prints. Berne: Hallwag, 1952. Price, Sw. Fr. 4.

This fascinating little book, issued in English edition, presents Switzerland as mirrored in the literature and graphic arts of the 18th and 19th centuries, and is a bargain of excellent design. Nine pages of introduction are followed by a series of quotations, usually favorable, from eminent writers of various nationality, many of them Englishmen. Modern views cannot, in this reviewer's opinion, equal the charm of the old prints (by Lory, Dunker, König, Birmann, von Mechel, and others), from which the admirable illustrations are taken.

J. M. T.

Art in Switzerland, by Peter Meyer, translated with an introduction by Mary Hottinger. 8vo., 103 pages with many illustrations, some in color. London: Nicholson and Watson (Zürich: Spiegel Verlag), 1946. Price, Sw. Fr. 4.35.

This is a small but comprehensive summary of Swiss Art from the earliest times to the present day; from the prehistoric and Roman periods through the Middle Ages, Gothic and Renaissance to Romanticism and Classicism. The treasures of Aventicum, St. Maurice, and St. Gall are depicted; Konrad Witz's "Miraculous Draught of Fishes" (1492), with Mont Blanc in the background, appears in color, and we are brought down to Calame, Böcklin, Hodler, and Amiet. Architectural features of the country are also included.

J. M. T.

The Way of the Four Winds, by Yrjo Kokko. 8vo., 285 pages

with index and 148 photo-illustrations by the author. Translated by Naomi Walford. New York: G. P. Putnam's Sons, 1954. Price, $5.00.

This is a book about Finnish Lapland, a composite life-story of Lapps through the cycle of a year. Many people fill out the background, but there are some in particular whose stories do much to give the book its epic character. First there is Jouni, a true son of the land where the four winds meet, who leaves his destroyed village for the army, but returns from this contact with the outside world to take up his old life. Second is Ahku, the wise old grandmother to whom all in the village turn for advice. And finally Falli, the young shepherd, a wealthy man by virtue of his reindeer herd. The nature of the people and their land is the theme, their history and superstitions, with the threat that civilization is bringing to the old way of life as the people of the south encroach.

The author was born in Karelia, now a part of Russia, and studied to be a veterinary in Vienna. He now lives in Finland, where this book has received the Grand Literary Prize.

J. M. T.

Schweizer Trachtenbuch, by Louise Witzig. 8vo., 280 pages with 60 plates from color photos and 200 illustrations (sketches and photos) in black and white. Zürich: Schweizerische Trachtenvereinigung, 1954. Price, Sw. fr. 38.

The four-volume *Volkstrachten der Schweiz* (1922-32) by Julie Heirli has long been out of print, and a much-felt want is supplied by the present book which presents the subject within a single cover. It is the best collection of Swiss costumes in color photography that has yet appeared and has been produced most artistically with proper attention to accessories and backgrounds. Some fine types have been selected for the portraiture, with real beauties among the girls.

J. M. T.

A Climber's Guide to the Interior Ranges of British Columbia, by J. Monroe Thorington. Third edition, 12mo, xii+225

pages. New York: American Alpine Club, 1955. Price, $3.00 ($2.25 to members).

The new edition of this guidebook anticipates the 1955 camp of the Alpine Club of Canada at Glacier, B. C. It is necessitated by exhaustion of earlier printings and by extensive revisions created from recent cartography and exploration. For the Selkirks, the groups from Sir Sandford northward have been entirely rewritten, as is also the case in the Purcells between the Dogtooths and the Bugaboos. Knowledge of the Cariboo and Monashee peaks has been amplified, and the book throughout contains many new peaks and route descriptions, making it of immense practical value.

W. S. C.

In Memoriam

BELMORE BROWNE

1880-1954

Artist, explorer, mountaineer, and great exponent of northern outdoor living and wilderness travel, Belmore Browne, a member since 1913 and later honorary member of the Club, died May 2, 1954, after a short illness, while still very much at the peak of his professional career. After four months' work, he had just completed a painting in oils of the background for a new black bear exhibit at the Museum of Science in Boston and was making the preliminary sketches for a background of one of his favorite subjects, the Alaskan brown bear, for the Peabody Museum at Yale, when death from cancer came only a few weeks before his 74th birthday.

Belmore Browne will be remembered by those who knew him well for the exceptional kind of man he was, and by those who only knew of him, for his early rugged journeys in Alaska, culminating in the 1912 expedition from Seward, on the coast, 400 miles to the north side of Mt. McKinley in the dead of winter. These journeys are recounted in his book *The Conquest of Mount McKinley,* a classic of mountaineering literature. The man's human qualities, his strength, his love of the outdoors, his modesty, and much that he was is clearly recorded in this book, written when he was 33. Less well known perhaps is the fact that it was he who with his companions in 1910 were able to secure proof of the falsity of Cook's claim to have ascended Mt. McKinley in 1906. Cook's claim regarding the North Pole was never so clearly disproved as his McKinley claim, but when pressed, he was never able to produce any positive proofs of either claim.

Belmore was a quiet spoken, friendly man who, though not easily aroused, could become very forceful on the subject of Dr. Cook and Mt. McKinley, for he knew Cook well from having been with him in the spring and summer of 1906, a few weeks prior to the alleged ascent.

Belmore Browne was born at Thompkinsville, Staten Island, New York, of well-to-do parents. The next year he was taken to Europe where for six years his summers were spent in Switzerland or on the Italian Lakes. In 1888 the family traveled to the Northwest and to Alaska, and in 1889 settled in Tacoma, where Browne's father became engaged in the lumber business. Belmore and his two brothers were sent east to private schools. His outdoor instincts cropped up in various ways at school. He trapped, hunted, and got in a scrape cutting down trees and building a cabin in nearby woods, not realizing that such activities were more restricted in the East. After passing his college entrance examinations, he was forced by business reverses of his father's, as a result of a real estate panic, to return to Tacoma and go to work in the family lumber company at $30 a month. He then returned east for two years, studying art, and working on a friend's sailboat in the summers. Still later, in 1902, after working for some time on a ranch east of the Cascades, he went to Alaska as a hunter and young artist on an expedition of the American Museum of Natural History to the Cassiar region of British Columbia. On this trip he accompanied Andrew J. Stone, after whom the bighorn sheep (ovis stonei) were later named. A ride down the Stikine in Chief Tlingit's great war canoe so impressed him that many years later he painted "The Chief's Canoe," which now hangs in the Smithsonian Institute in Washington.

In 1903 he went to the Kenai for hunting and sketching and again to the Cassiar in 1905. On the Canadian Pacific train crossing the Rockies that year he met Professor Herschel C. Parker of Columbia. They talked mountains and Alaska, and it developed that they both wanted to go to Mt. McKinley, which had been named only ten years before. In 1906 Parker and Dr. Frederick A. Cook joined forces and Belmore was invited to go with them. This journey from Cook Inlet up the Yentna River by boat and packhorse was the first of three attempts to reach and climb the

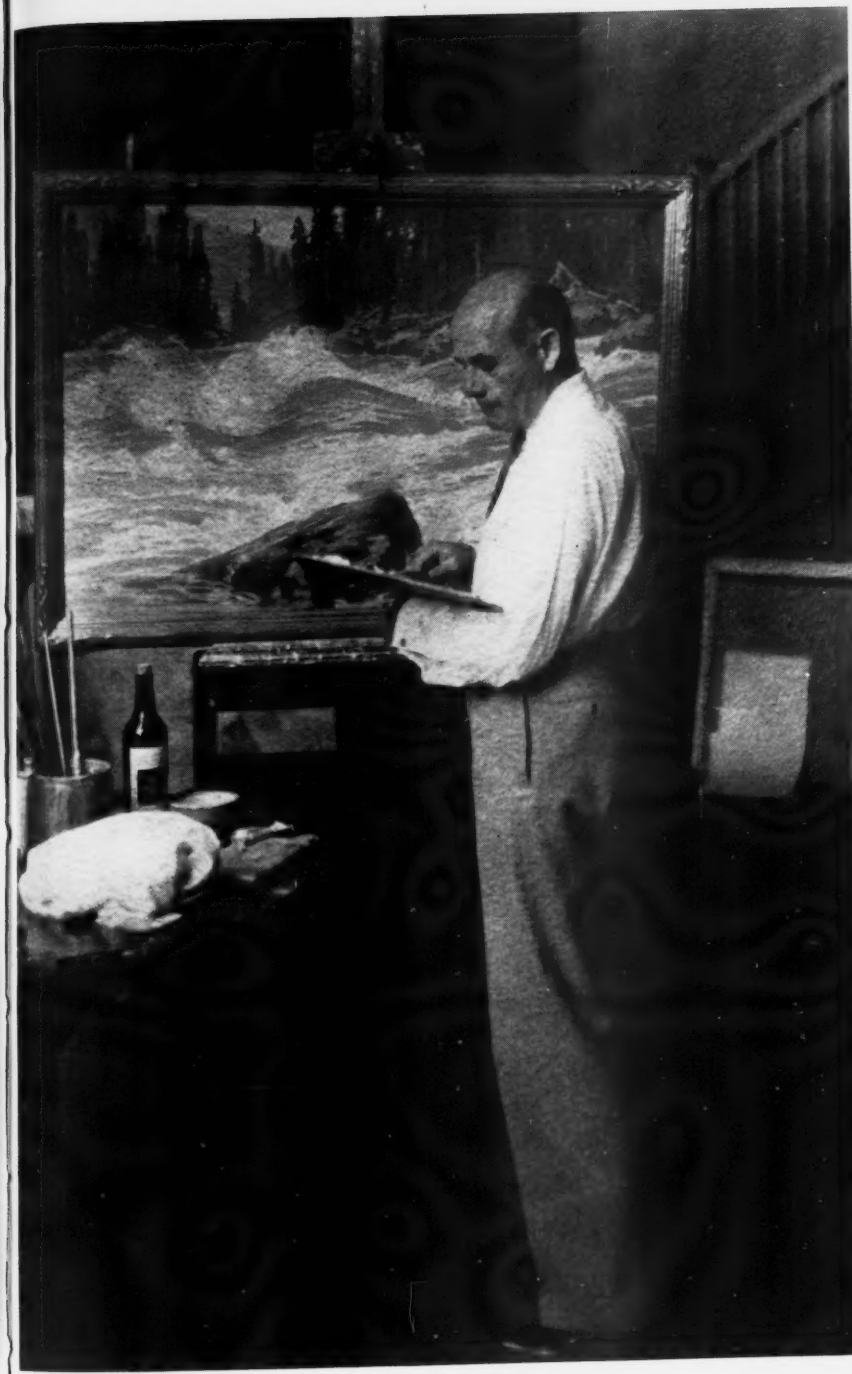
great mountain. The second came in 1910, by boat up the Susitna and Chulitna Rivers to what is now known as Ruth Glacier and to its head at the foot of the southeast ridge of the McKinley massif. In 1912, the dog-sled journey took them from Seward on the coast, past Turnagain and Knik Arms, up the Susitna and Chulitna again, but on the winter ice, across the Alaska range, then up Muldrow Glacier, and finally up the slopes of Mt. McKinley itself, to within a few hundred almost horizontal feet of the summit. Browne and LaVoy would almost certainly have reached the highest piont had they not turned back with Parker who was no longer able to face the wind and cold. Stuck's party in 1913 is technically credited with the first ascent of McKinley, but Belmore Browne's party had found the way to the summit and up it. Bates and Washburn in 1942 took pictures along the summit ridge, in the reverse direction of some of those in Browne's book, and they and he agree that he had been within a few minutes' easy walking distance of the top in 1912.

The three expeditions to Mt. McKinley, in 1906, 1910, and particularly 1912, were without question the most arduous journeys up to that time or for that matter anywhere in the mountains of North America, not excepting that to Mt. Logan in 1925.

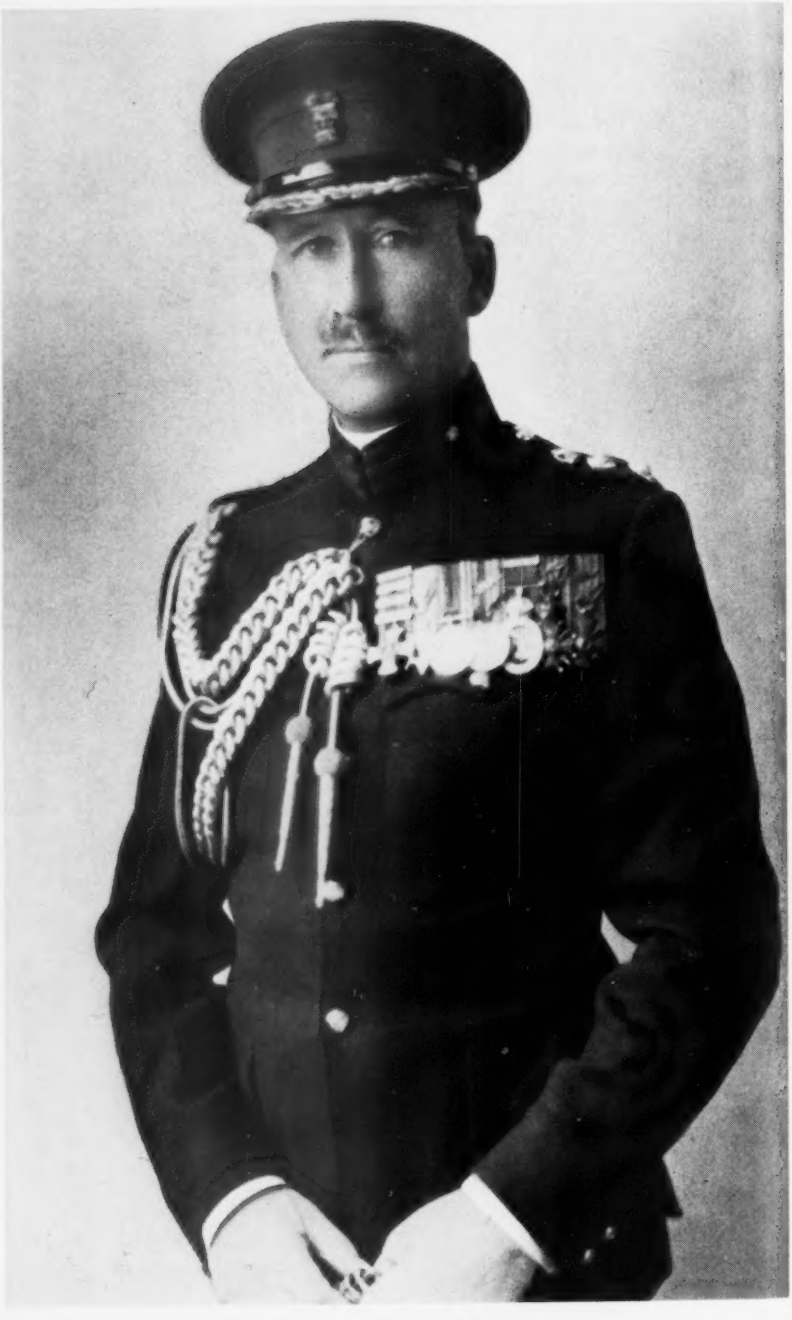
With such extensive wilderness experience behind him, Belmore went home in 1913 to marry an old friend, Agnes Sibley of Philadelphia, and then live for four years in New York. A daughter Evelyn and a son George were born there. In 1917 he had the satisfaction of seeing Mount McKinley National Park created. After short service in the first war as captain in the Aviation Section of the Signal Corps, he returned to civilian life and the family moved to Banff.

The house which they built there from a small beginning on the main street, between the town and the Banff Springs Hotel, became well known to many friends of the Brownes and to summer visitors. For about 25 years it was their real home. In 1947 they moved to Seebe, just at the edge of the mountains east of Banff, where not so many people could find them but where a log house in a clearing five miles south of the railroad enabled Belmore to have his horses nearby and live more as he had in the earlier days.

For years Belmore and his son George were inseparable com-



BELMORE BROWNE



MAJOR GENERAL W. W. FOSTER

panions on the trail in the Canadian Rockies, always handling their own pack train and camping in many upland valleys where they painted well into the fall each year. In our 1941 *Journal,* in an illustrated article entitled "Paintbrush on the Heights," Belmore has explained something of his philosophy and urge to paint in the mountains.

In the early thirties his winters were spent in Santa Barbara where he became Director of the Santa Barbara School of Art. From 1938, the winters were spent at Ross, north of Golden Gate, when he was not working elsewhere. Just before the last war he was commissioned to paint several backgrounds for big-game exhibits in the North American Hall of the American Museum of Natural History in New York. The Kodiak bear, mountain goat, elk, caribou, mountain sheep (ovis dali), and other big game all stand now in front of the backgrounds so well created by him and his son.

During World War II Belmore, then in his early sixties, became Air Force instructor in survival procedures, conducting schools in the high mountains of Colorado. He said once that this work, which he hoped would save lives, was much the most satisfactory type of war service. He made a great success with his pleasing personality and his complete mastery of his subject, at once obvious to all who were fortunate enough to benefit by his instruction. Even after the war he was kept at this work at McCall, Idaho, and elsewhere, because, as he said, most men these days know little of even the most elementary facts about outdoor existence, and crews of planes downed in remote places may at any moment find themselves wholly dependent upon themselves while awaiting rescue. Directly and indirectly, he taught many thousands of men the simple but essential things necessary for wilderness survival.

The Brownes were a very close and happy family. Belmore had the satisfaction of seeing his son follow in his footsteps and his daughter become a teacher of physical education at a New Hampshire college. George himself had two children, including a son named for his grandfather.

Belmore Browne was one of the last of the pioneer northwoods travelers who remained active right up to the end. It has been said that he was the ideal of what an explorer and moun-

taineer should be. His early years in Europe, the school years in the East, and his years in the Northwest, exploring, climbing, traveling by early means, and painting, had all combined to develop in him quiet strength, modesty, charm, and skills which we may not soon again see duplicated in one individual.

Henry S. Hall

WILLIAM WASBOROUGH FOSTER

1875-1954

In the death December 2, 1954, at Vancouver, British Columbia, of Major General William Wasborough Foster, D. S. O., C. M. G., D. V., of the Canadian Army, recipient of 15 military decorations, Canada lost one of its most distinguished officers and accomplished citizens. His military services and activities in civic, social, and business life were outstanding and, although his leadership has now ceased, the influence of his high standards will endure.

Born in Bristol, England, in 1875 and educated at Wycliff College in Gloucester, he came to British Columbia in 1894 and was employed by the Canadian Pacific Railway at Revelstoke until 1910 when he became Deputy Minister of Public Works of British Columbia. It was under his energetic administration that the Province gained a Dominion-wide reputation for the efficiency of its highway system.

Late in 1913 he was elected a Conservative member of the Legislature and served the Island Riding until 1916 when he was one of the first to volunteer for overseas service in the first World War in the 2nd C. M. R. as a junior officer. A short time later, after heavy fighting began, he was promoted on the battlefield from captain to brigadier because of his great personal bravery and his brilliant leadership, and he was placed in command of the 52nd Infantry Battalion and the 9th Canadian Infantry Brigade throughout the fighting at Passchendalle, Amiens, and Cambrai.

He was twice seriously wounded in action and five times mentioned in dispatches. His record during the four years of almost continuous action at the front was replete with dangerous sorties

to advanced positions, some of them carrying him behind the enemy lines when the Canadian troops made their brilliant stand at Cambrai against the concentrated effort of the enemy, where there now stands a superb memorial dedicated to the soldiers who fought and died there.

I am glad to vouch for the truth of the report that Foster was recommended for the Victoria Cross because of his desperate work trying to secure reliable information from behind the enemy lines as to their strength and plans of attack, but he insisted that the decoration be passed along to a soldier who had acted as his scout on all of his daring sorties. He felt his recommendation was fully justified because, after making one of their deepest and most successful penetrations, he became suspicious of his scout for having boldly guided him along such an intricate route, so began to question him about it and was much relieved to be told—"Oh, I blazed the trail *last night.*" This account was given to me by Foster months before there was any public mention of the incident of the V. C.

Between the two World Wars, Foster took a prominent part in the formation of the Canadian Legion, B. E. S. L., and served as Provincial-President for British Columbia and as President of the Dominion Command. He was Honorary President of the Dominion Command at the time of his death. During this same period, he maintained close connection with the Canadian Armed Forces, commanding the D. C. O. R. and Infantry Brigade at Vancouver; he was Honorary Colonel of the 15th Artillery Brigade and Honorary A. D. C. to the Governor General of Canada.

In private life as well as in the service, Foster was always friendly and considerate of other people and slow to anger, but when he was imposed upon, his determination drove him to resolute action to remedy any bad situation within his jurisdiction. This trait of his was recognized and put to effective use when, in 1935, during the depression, the lawless elements in Vancouver got out of hand and the city authorities requisitioned his services as Chief of the City Police Department. During his four years of administration, the vice-ridden police force was thoroughly reorganized and trained in such an efficient man-

ner under his uniform policy, "Enforcement of the law without fear or favor," that it finally rid the city of its criminal element and again made the streets safe at night.

Although such vigorous enforcement was resented and criticized by a small political minority, at its annual convention the Canadian Legion unanimously passed a resolution stating that they had "Complete confidence in the integrity and ability of Brigadier Foster, who is known and respected throughout the British Empire as a gallant soldier, a fine gentleman, and a great leader." This demonstration, regarded as one of the most impressive ever witnessed in British Columbia, was later termed by Foster one of the greatest thrills of his life.

In 1936 he was elected president of the Pacific International Association of Law Enforcement Officials, a position closely allied to that as head of the Vancouver Police Department, its chief objective being to rid the north Pacific coast of its lawless element.

At the outbreak of war in 1939, Foster was given leave of absence from the Police Department; he then returned to active service as brigadier and organized the Auxiliary Services of Canada, going overseas with the First Canadian Division. In 1940 he was recalled to Canada and commanded District 12 in the Province of Saskatchewan; in 1942 he took command of District 6 with headquarters in Halifax. He also acted as Chairman in Chief of the Canadian Officers Selection Board, and in March 1943, was promoted to the rank of major general. Appointed Special Commissioner of Defense Projects in Northwestern Canada, he made his reports directly to the War Committee of the Dominion Cabinet. He cooperated with the United States Forces and exercised supervision over the construction and operation of the Canadian portion of the Alcan Highway. In 1944 he was created a Companion of the Order of St. Michael and St. George, and in 1945 was awarded the Legion of Merit, degree of Commander, by the United States.

At the end of hostilities, he was appointed a member of the British Columbia Power Commission, made a member of the Canadian – United States Committee covering Northwest Defense Development, and President of the Electrical Service League of British Columbia.

Such is a brief history of the very extensive military and governmental activities of Major General Foster during his 60 years of citizenship in his adopted country, Canada, while between wars and threats of war he was also very active in many other interesting projects in which he distinguished himself, such as the highly respected firm of Evans, Coleman & Evans of Vancouver, in which he performed excellent service, and his own corporation, Pacific Engineers, of which he was president.

Wherever Foster went and in whatever he did, he left a record of fine accomplishment. This is true of his service on the British Columbia Power Commission which started with little in assets and now owns many millions of dollars worth of power plants and vast miles of distribution lines that have opened up and are supplying power and light at profit to vast areas of valuable lands in the Province.

In 1911 my wife and I had the good fortune to meet Colonel Foster, then Deputy Minister of Public Works of British Columbia, at the Sherbrook Lake Camp of the Alpine Club of Canada. Together we climbed Mt. Daly and several other peaks in the locality, after which we made our first pack trip with him and his engineer, Mr. J. R. Ford, Vice-President of the A.C.C., on their inspection trip over an extremely rugged and lightly blazed trail that is now the scenic highway from Banff to Lake Windermere at the source of the Columbia River. In spite of five days and nights of almost continuous fog and rain, which shut out the view of everything but the innumerable stretches of burnt, dead, or down timber and the many creeks and large streams that had to be forded from one wet camp site to the next, we still had a very happy time and finally were rewarded with a delicious swim, under brilliant moonlight, in the picturesque Sinclair Hot Springs. This stimulated us to go on up the Columbia River nearby to the houseboat on Lake Windermere, arriving there at midnight. This difficult and tiresome trip was a real test of the congenial companionship between us during the 43 years of our meetings at the Alpine Club camps in the various climbing centers in the Canadian Rockies, Selkirks, and Purcell mountains and during one summer of exploratory climbing in the Yukon, all of which helped me to really know Billy Foster perhaps better than any other man knew and appreciated him.

Our first serious test of climbing came in 1913, with our excellent Austrian guide, Conrad Kain, when, in good weather, we were fortunate to make the first ascent and traverse of Mt. Robson from a bivouac at the "Extinguisher," a rock on Robson Glacier. We went up the northeast shoulder route and down to a 9,000-foot bivouac on the southwest ledges, then downward again by Kinney Lake and back to the Club camp near Berg Lake in 37 hours and 45 minutes. It was this climb that the celebrated English climber Mr. A. L. Mumm, with his lifelong Swiss guide, Inderbinen, tried twice to make and failed, his guide remarking, "I never before saw death so near." Conrad Kain declared it the most difficult and dangerous expedition he had made. Foster took this climb in his stride, apparently with quiet enjoyment and satisfaction.

Then in later years, when the English Alpine Club was busy with its plans for the first attempt on Mt. Everest, the Alpine Club of Canada began to consider an expedition to attempt the climb of "the world's most massive peak, Mt. Logan." At the 1923 Canadian Alpine Club camp at Larch Valley a Mt. Logan Committee was appointed to investigate the feasibility of organizing and sending out an expedition to try to climb the peak in 1924. In absentia, I was named on that committee and, after Colonel Foster felt forced to decline the assignment as leader of the party because of the uncertainty of his plans for 1924, again in absentia I was drafted as leader of the expedition. However, after the committee's study of the charts and the meager information available about the mountain, I refused the assignment unless the date were postponed for a year, during which, on my own, I agreed to make a reconnaissance of the approaches and a possible route up to its 18,000-foot plateau. This offer was accepted and the reconnaissance was made up to 10,000 feet, from which point a further ascent of at least four or five thousand feet appeared feasible up the trench between the massif and its outlier, King Peak.

During the following winter, three months of provisions and equipment for eight men were freighted in by dog teams and at 7,000 feet a cache was made on the Ogilvie Glacier, and in May the climbing party of eight men went in to the mountain and on May 31st established the base camp near the foot of the

trench at 7,800 feet; then on June 1st the 23-day assault of Logan began and six men of the party stood on the summit at 8:00 P.M., June 23rd, two having turned back earlier because the toes of one had been frostbitten.

The detailed story of the Mt. Logan Expedition is fully told in the 1925 *Canadian Alpine Journal,* but the foregoing brief account is given to complete the outstanding climbing record of Billy Foster. It was the climax and swan song of our serious climbing together and, true to all his activities about which I had personal knowledge, his presence in the party was essential to the success of the expedition for, although I was officially designated the leader of the party, I made no important or vital decision, after we had begun the climb, without first seeking his advice and approval and, as he well realized, his mere presence was a great stimulus in keeping up my strength and courage.

William Wasborough Foster will best be remembered by his casual acquaintances for his good humor and ready wit that always lightened the cares of the day and were so appropriate around the campfire. At the meetings of his various clubs and organizations, he could always be depended upon to make valuable contributions to the discussion of any subject under consideration.

The following are the memberships he prized most highly: Fellow of the Royal Geographical Society, Director of the Canadian Geographical Society, life member of the American and Canadian Alpine Clubs, member of the Alpine Club, and Honorary President of the Alpine Club of Canada at the time of his death.

His intimate friends will remember him best as an outstanding man whom it was a rare privilege to know.

Albert H. MacCarthy

GEORGE MacGOWAN
1902-1954

Friends of George MacGowan were saddened at his passing on November 26, 1954. His death resulted from a coronary thrombosis while playing a game of handball, a sport which he had actively followed for many years. George leaves a wife, Jane, and two children; a son, Douglas Hugh, and daughter, Laurie.

Raised in the Northwest, George MacGowan received his education in Seattle and later became a partner in the insurance firm of William H. Harmer Company.

Always an enthusiastic mountaineer, he began his serious interest in climbing in the early thirties. During this period he served as President of the Seattle Mountaineers, Inc., and a number of times as a member of the Board of Trustees. He was active in organizing the Cascade Section of the American Alpine Club and presided as its first Chairman. Later, he was also a Western Vice-President of the Club.

Mountaineering was not all fun for George as he was among the first to offer his services in the Mountain Rescue Council, which was organized to carry on rescue work and to promote safety in mountaineering. His early climbs covered most of the Cascade and Olympic ranges. He spent many of his later years in other well known Canadian climbing areas like those of Garibaldi, Lake O'Hara, the Tonquin Valley, Maligne Lake, the Selkirks, and the Bugaboos in Canada. Other regions visited were the Wind Rivers and the Grand Tetons in the Rockies. His climbs followed the most difficult routes and included some first ascents and a new route on the Grand Teton. During World War II he served his country in the Mountain Troops, Company G, 87th Infantry Regiment, and helped to organize the first climbing school.

George will be remembered by his friends as a climber's mountaineer and he will be missed greatly. Under all circumstances his ever-ready wit and cheerfulness stimulated those with whom he was associated. He leaves very many friends whose lives his friendship has enriched beyond measure.

Will H. Borrow, Jr.

ELTON STERLING THAYER

1927-1954

Elton Sterling Thayer was born March 30, 1927, at Readsboro, Vermont, and was killed in a climbing accident May 16, 1954, on Mt. McKinley, McKinley Park, Alaska.

After residing in Vermont during childhood and early youth,

he served in the United States Army from 1945 to 1948. His major tour of duty was at Ladd Air Force Base, Fairbanks, Alaska.

Thayer had completed three years at the University of Alaska and had been employed as a ranger by the U.S. National Park Service for the past year, as well as during three previous summers. He was an outstanding student in Wildlife Management and excelled in his work at McKinley Park.

A climbing expedition of four men, organized by Thayer, left April 17th to make an ascent of Mt. McKinley by way of the South Buttress, a route over which no one had previously reached the summit. On May 15th they were at the summit. The following day, during the descent of Karsten's Ridge, near the Harper Icefall, an accident occurred in which Elton was killed instantly.

Mountaineering had become a major interest in Elton's life in recent years. Other ascents he had made include Mt. Hess and King Peak. While there are various satisfactions derived from mountaineering, Elton felt that the foremost benefit for him was a personal spiritual enrichment. God, Who created him as well as the mountains, became much more real to him through these experiences.

He was married September 20, 1953 to Berenice M. Luthro at Fairbanks Lutheran Church. Others who survive his passing, besides his wife and son, Elton, Jr., include his grandparents, Mr. and Mrs. Verne S. Thayer, Readsboro, Vermont, with whom he lived in early years; his father, Elton V. Thayer, Somerville, Massachusetts; his mother, Mrs. Dorothy Robbins, West Springfield, Massachusetts; a sister, Mrs. Don Carey, Keene, New Hampshire; and an uncle, Ernest Thayer, Long Beach, Calif.

A memorial wreath was dropped on Mt. McKinley near the accident scene several weeks after his funeral, May 30, 1954.

As a friend and climbing companion Elton could not be surpassed. He was one of the few men I have ever known who had strong religious beliefs and actually practiced them in his everyday life. He loved the mountains, the wilderness, and all forms of wild life that dwell in the vast forests of Alaska. As a mountaineer he was a tireless walker, a strong climber, and completely

unselfish and considerate under even the most trying conditions.

Those who knew Elton and were inspired by his character are fortunate, but they may forget him in time. Those who were close to Elton, who climbed and suffered with him, I am sure will never forget him, especially when they look south from Fairbanks on a clear day and see his majestic monument, Mt. McKinley.

Alston Paige

Proceedings of the Club

SECRETARY'S ANNUAL REPORT

4 December 1954

The Club's business and correspondence continues to increase and much additional work will devolve upon the Assistant Secretary. It is a cause for satisfaction to the Membership Committee that new membership proposals received during the past year have for the most part been carefully prepared with a consequent reduction in the work of processing them. Henry Hall has been a great help in arranging the lists for circulation to the membership.

At the time of the last Annual Meeting the membership stood at 439 Active Members and a total of 445, including both Active and Honorary Members. Not including applications for membership approved by Council at its meeting of this date, our membership today comprises 449 Active Members and a total of 455, including both Active and Honorary Members. There has thus been a net increase of 10 despite the loss of 5 members by death, 8 by resignation, and 3 dropped for non-payment of dues.

Since the date of the last Annual Meeting, the Club has lost by death the following: Merl Lavoy, December 6, 1953; Max E. Friedmann, March 31, 1954; Belmore Browne (Active and Honorary), May 2, 1954; Elton Sterling Thayer, May 17, 1954; and George MacGowan, November 26, 1954.

Meetings of the Directors have been held in New York, March 20th and May 22nd; in Barre, Massachusetts, on October 2nd; and in Philadelphia, December 4, 1954. There have also been

regular meetings of the Sierra Nevada Section (Wm. Siri, Chairman) and the Cascade Section (Ralph W. Johnson, Chairman) during the year. R. Duke Watson has been elected the new Chairman of the Cascade Section. With the approval of Council, a Rocky Mountain Section has been constituted under the co-chairmanship of G. A. Cunningham and Mrs. Robert W. Swartz; this new Section is well launched on a very active program. A number of informal meetings and teas have been held at the Clubhouse, usually with a showing of colored slides or movies.

Certain relatively minor but important modifications have been made in the Clubhouse to bring it into strict compliance with the building laws and permit the obtaining of a Certificate of Occupancy. Under the supervision of William R. Latady and with funds raised by Dr. Thorington, the old stable has been thoroughly remodeled to house and display to better advantage the Club's large and valuable collection of mountaineering exhibits. The entire property is well cared for by Mr. Neil under the supervision of William O. Field, Chairman of the House Committee, and the cost of maintenance and repair kept to a minimum.

A committee under the Chairmanship of David Harrah is preparing to conduct a Summer Camp at Cascade Pass in 1955. It promises to offer unusually fine climbing possibilities.

The California Himalayan Expedition not only made the first reconnaissance of Makalu but under difficult weather conditions also made an energetic attempt on the summit by a newly selected route. One-half the loan of $2000 made to the Expedition from the Club's Annapurna Fund has already been repaid.

The 1954 issue of the *American Alpine Journal* is the largest yet published and represents the first efforts of the reorganized staff and newly selected printer. Although the Editor-in-Chief, William S. Child, has been heavily overburdened by other duties and had expressed a desire to resign from this position, he has been prevailed upon by Council to continue for another year.

The *A.A.C News* has published six issues since the last Annual Meeting and is a firmly established Club institution. There is an increasing demand by advertisers for space, and it appears that it can be made self-supporting.

Helen Buck has resigned as Librarian but continues as Chairman of the Library Committee and devotes a great deal of time and effort to the Library, and particularly to the cataloguing which is being carried forward with the aid of the Assistant Librarian, Mrs. Hinds.

The *Safety Report* is in increasing demand, and 500 copies of this year's *Report* were supplied one organization for use in its training program.

Our members have been active this past year in many regions, including the Himalaya (Makalu) and Alaska, where two new routes were made on Mt. McKinley and Mt. Deborah and Mt. Hunter were climbed for the first time. An expedition to the Cordillera Blanca of Peru, including seven of our members, climbed seven peaks, among them two first ascents and both summits of Huascaran. New ascents were also made in the Arctic, the Purcell Range, and the Canadian Rockies while other members were active in the Bugaboos, Sawtooths, Tetons, Wind Rivers, Alps, Dolomites, Norway, the Pyrenees, and the Demavend massif. This incomplete record speaks well for the enterprising character of our membership.

A new Expeditions Committee has been appointed by the President which is expected to afford considerable assistance to expeditions being organized in the future.

At the request of Council, Henry Hall made a tour of the Club's three western Sections to discuss with them the various problems and activities of the Club and to learn first-hand their views on the Club's operation and policies. Efforts are being made to provide for more regular and closer contact with our scattered membership.

It is satisfying to look back upon the accomplishments of the past year and stimulating to look forward to the projects for the future.

JOHN C. OBERLIN
Secretary

ANNUAL MEETING AND DINNER

Minutes of the 52nd Annual Meeting of the American Alpine Club, held at the Bellevue-Stratford Hotel, Philadelphia, Pennsylvania, on Saturday, December 4, 1954, at 2:00 P.M.

The President called the meeting to order. Some 45 members were present at the beginning of the business meeting and a considerably larger number at the close.

It was

VOTED: To dispense with the reading of the Minutes of the last Annual Meeting, which had been published in the *American Alpine Journal,* and to accept them as thus published.

The Secretary then read his Annual Report which was thereupon accepted by *Vote.*

The Treasurer presented his annual Treasurer's report and after brief discussion it was

VOTED: To approve each item of expense during the past fiscal year as reported by the Treasurer in his Annual Report.

VOTED: To approve the retention to October 31, 1954, of the investments shown in the Treasurer's Annual Report.

The President then commented on the increasing interest being shown in the new Expeditions Committee under the chairmanship of Dr. George I. Bell and the general desire to expand the Club's activities. Certain minor amendments to the Club's charter appear desirable to remove ambiguities and anachronisms and to lay a better basis for such expanded activities. The President read the following proposed amendments, as prepared by legal counsel:

"RESOLUTIONS FOR AMENDING THE CHARTER
OF
THE AMERICAN ALPINE CLUB

"RESOLVED, that Paragraph 2 of the Charter (or Articles of Incorporation) of this Club, which now reads as follows:

'The purposes for which the said corporation is formed are as follows: The scientific exploration and study of high mountain elevations and of the regions lying within or about the Arctic and Antarctic Circles; the cultivation of the mountain craft; the promotion and dissemination of knowledge regarding the regions above indicated. It shall

for its primary work undertake the study of the high mountains of all America, gathering in the facts and phenomena pertaining to them, and shall publish a series of illustrated monographs of these mountains for the purpose of presenting a complete description of the alpine mountains of the Western Hemisphere.'

be amended to read as follows:

'The purposes for which the said corporation is formed are as follows: The scientific exploration and study of high mountain elevations and of the regions lying within or about the Arctic and Antarctic Circles; the cultivation of the mountain craft; the promotion and dissemination of knowledge regarding the regions above-indicated. It shall for its primary work undertake the study of the high mountains of the world, gathering in the facts and observing phenomena pertaining to them, and shall publish a series of illustrated publications of these mountains for the purpose of presenting a complete description of the alpine mountains of the world.'

"FURTHER RESOLVED, that Paragraph 3 of the Charter (or Articles of Incorporation) of this Club, which now reads as follows:

'The business of the corporation is to be transacted in the City of Philadelphia, State of Pennsylvania.'

be amended to read as follows:

'The business of the corporation is to be transacted in the City of Philadelphia, State of Pennsylvania, or at such other place or places as the Board of Directors may designate from time to time.'

"FURTHER RESOLVED, that Paragraph 5 of the Charter (or Articles of Incorporation) of this Club, which now reads as follows:

'The yearly income of the corporation from other sources than real estate shall not exceed the sum of Twenty thousand dollars.'

be amended to read as follows:

'The yearly income of the corporation shall be without limit.'

"FURTHER RESOLVED, that the officers of this Club be and they hereby are authorized in the name of this Club to take any and all proceedings, execute any and all documents and do any and all acts which may be necessary or appropriate to make these amendments fully effective."

Upon motion by Mr. Bonney, duly seconded, it was

VOTED: To approve and adopt the foregoing Resolutions.

Mr. Child, Editor of the *American Alpine Journal,* reported briefly on the prospects for the 1955 issue. Upon motion by Mr. Wood, duly seconded, it was

RESOLVED: That the Club greatly appreciates the excellent work done by the Editor and his Staff in the preparation and publication of the last issue of the *Journal.*

Miss Gest commented that the *AAC News* is rapidly acquiring the aspects of a newspaper and is in increasing demand outside the Club. Advertisers, especially publishers of new books, look on it with favor as an advertising medium. Items of interest should be submitted just as promptly as possible and preferably in reasonably condensed form.

In the absence of Mr. Baldwin, Mr. Gilman read the report of the Conservation Committee. The President commented that the Club was not in a position to lobby in Washington in behalf of particular projects.

Miss Corning, Chairman of the Entertainment Committee, briefly described the teas, meetings, and lectures held at the Clubhouse during the year.

Mr. Field, Chairman of the House Committee, reported that the Clubhouse is in excellent condition because of the maintenance by Mr. Neil, the Superintendent, and described the remodeling of the stable into a museum under the supervision of Mr. Latady with funds raised by Dr. Thorington. Upon motion duly made and seconded, it was unanimously

RESOLVED: The Club hereby thanks Mr. Field, the members of the House Committee, and Messrs. Thorington and Latady for their excellent work in maintaining the Clubhouse and constructing the Museum.

Mrs. Orcutt reviewed the problems of the Research Committee, which is now quite short of funds, but reported that Mr.

Field will be conducting glaciological work of interest during the coming year. It is also hoped to publish in the next issue of the *Journal* some of the scientific material developed by the Makalu Expedition.

Dr. Ferris remarked that during the year 14 accidents had been reported to the Safety Committee as occurring on the North American continent. He is engaged in expanding his sources of information.

Mr. Hall read a letter from Bob and Gail Bates who have been in Nepal and Sikkim and are now en route to New Zealand. He described his tour of the western Sections at the request of Council and strongly recommended that an effort be made to arrange such contacts with our far-flung membership more frequently, if possible.

In the absence of Mr. Hainsworth, Chairman of the Nominating Committee, the Secretary read the Nominating Committee's report (previously circulated to the membership in accordance with the By-Laws). As no other nominations had been submitted, the Secretary acclaimed as elected: Dr. Louis L. Bergmann, Lawrence G. Coveney, and David Harrah as Councilors for 1955-1957, and Henry S. Francis as Councilor for 1955-1956.

Mr. Henderson suggested that the names of committee chairmen and Section chairmen be published in the Register as well as in the *Journal* and Mr. Gilman replied that that is now being done except for listing Section chairmen's names in the *Journal,* which would be a desirable addition.

A question from the floor was received, asking whether the Club could not issue a seal of approval for mountaineering equipment meeting approved tests. Mr. Gilman suggested that the Club might have legal responsibility if an accident resulted from use of Club-approved equipment. Dr. Wexler suggested that the Club could, however, develop and promulgate specifications for minimum requirements, as is now being done in England with regard to climbing rope. Mrs. Orcutt commented that she had discussed this matter with Sir Hubert Wilkins and that if the Club were to work out specifications suitable for Army use, the Army would no doubt standardize them. There being no further business, it was

VOTED: To adjourn.

The business meeting was followed by a series of informal lectures with a large number of members and guests attending. Mr. Harrah showed slides of the surroundings of the planned 1955 A.A.C. Camp at Cascade Pass, which gave an excellent idea of the fine climbing opportunities in this wild and spectacular area. Mr. Clinch showed motion pictures of The Stanford 1954 Coast Range Expedition which achieved a number of successes despite extremely bad weather conditions, and Peter Robinson presented slides of climbs in the Purcells and Bugaboos, particularly in relatively little known parts of these ranges.

The Fifty-Second Annual Dinner of the Club was held at the Bellevue-Stratford Hotel at 6:30 P.M. and was attended by 159 members and guests.

President Gilman presided, and immediately following the Dinner spoke at length regarding Miss Helen I. Buck's long service to the Club as Librarian and in other capacities, and reported her formal resignation as Librarian. He then displayed an engraved silver tray to be presented to Miss Buck on behalf of her many friends and associates in the Club and asked Mr. Field to deliver it to her as she was unable to attend the dinner. His remarks were received with general and prolonged applause.

Dr. George I. Bell then described "Ascents in the Cordillera Blanca, Peru," illustrated with slides of that spectacular and accessible region, and Dr. William E. Siri gave a polished lecture, "Ten Men on Makalu," with color movies, which afforded both a clear understanding of the organization and objectives of the expedition and a dramatic picture of the struggle with the mountain.

The following morning an informal "brunch" was held at the hotel and a number of members also made an excursion to nearby cliffs to sample the local climbing.

JOHN C. OBERLIN
Secretary

REPORT OF THE LIBRARIAN

The Library now contains nearly 5600 bound volumes. Additions include books purchased by the Club and donations from a few members, friends, and publishers. We are especially grateful to Tony Cromwell and Jim Ullman for the Columbia Lip-

pincott *Gazetteer of the World,* invaluable for quick geographical references; to Henry S. Hall, Jr., for current new books and to Dr. Thorington for many rare books, folios, manuscripts, and a wonderful collection of old maps; to W. O. Field, H. E. Mills, and E. C. Porter for other valuable additions.

Donations from Lillian Gest, Alfred J. Ostheimer, 3rd, and the Estate of Max Friedmann included many duplicates, some of which were added to the Lending Library; others were sold to provide funds for Library needs, such as catalog cards and a third filing case for unbound material.

The Lending Library has grown so rapidly that a revised list is now available to members upon application. If you have lost your copy of the rules for the use of these books, limited to members only, we urge you to write for another.

The Reserved Section consists of two cases of duplicate books, rare and autographed, some with annotations, others with letters, and many with fine or unusual bindings—a valuable and interesting special collection which is overflowing the shelves.

The main library, Lending Library, and Reserved Sections contain a total of 7,200 volumes for which space must be provided, always a problem and one which becomes crucial every four or five years. Last summer, this problem was temporarily solved by making use of two old double cases for which there had previously been no room. Mr. Neil did a splendid job of reconditioning and painting them. One double case replaced a photographic case which was transferred to the first floor; the other was split into two sections and a single case was placed on either side of the new vestibule, built into the Library last year because of the fire laws. This vestibule was at first viewed askance, but is now considered an asset, as not only do the sides provide more shelf space, but the top serves as a depository for Dr. Thorington's largest folios.

Besides the books, journals, magazine articles, pamphlets, and other unbound material, the Scrapbooks supply much needed up-to-date information. Our Scrapbooks cover a period from 1860 to date, although the ones before 1900 are very incomplete. The recent ones are in such constant use that Mrs. Hinds now indexes each item as it is added.

Photograph albums of historic interest were presented by

Edward Feuz and Dr. Thorington and a fine album of magnificent photos, taken by himself and beautifully mounted, was donated by Edward C. Porter. Bepi Degregorio, the famous Cortina guide, sent us a photo of the Italian Expedition to K2, signed by each member. A friend has also sent photos of the Everest climbers when they were received at the City Hall by the Mayor last spring. We have cartons of photographs of all sizes, the accumulation of years, which need to be classified and filed.

Mrs. Hinds continues to catalog and type the cards for each book as it is added to the library. Members may not realize the constant appeals to the Club for data concerning the Why's, How's and Where's relating to mountaineering. The A.A.C. is coming into prominence more and more as a recognized center of information concerning mountains and mountain areas (a "Bible" to many). If we wish to uphold our position, a permanent Librarian should be appointed as soon as possible. The job has been a full-time one for several years and cannot possibly be carried on by a volunteer.

HELEN I. BUCK
Chairman of the Library Committee

REPORT OF THE COMMITTEE ON CONSERVATION

The membership of the Committee has remained the same. No meetings were possible because of the widely scattered location of the members.

Our chief activity has been investigation of the proposed Echo Park Dam in Dinosaur National Monument and correspondence regarding it. Mr. Goldthwaite had the opportunity of sounding out local opinion nearby. Other members have interviewed people who have first-hand knowledge of the situation. These contacts have strengthened our conviction that the project should be vigorously opposed in its present form. However, it is evident that the opposition has failed to exploit fully the uneconomic aspects of the plan which should be sufficient to make further study advisable. David Brower's proposal for a constructive restudy of the whole basin development is an extremely sound suggestion. The bill did not pass, but indications are that the

issue may be revived in the next Congress and conservation forces must not relax.

Other matters considered were developments in Rainier National Park and the perennial threat to Olympic National Park.

The Committee has kept in touch with these and other developments through the Sierra Club, Wilderness Society, Nature Conservancy, National Wildlife Federation, and other similar organizations.

RICHARD ARCHBOLD
GEORGE E. GOLDTHWAITE
WELDON F. HEALD
RICHARD M. LEONARD
HENRY I. BALDWIN, *Chairman*

COMMITTEES OF THE CLUB, 1955

CONSERVATION. George E. Goldthwaite, *Chairman;* Richard Archbold, Henry I. Baldwin, David R. Brower, Weldon F. Heald, Richard M. Leonard.

ENTERTAINMENT. Ursula Corning, *Chairman;* Mrs. Arthur L. Erlanger, William R. Latady, Duncan A. MacInnes, Henry E. Mills.

EXPEDITIONS. George I. Bell, *Chairman;* G. A. Cunningham, William P. House.

FINANCE. Henry S. Kingman, *Chairman;* Joel E. Fisher, Henry S. Hall, Jr., M. Albert Linton, David W. Measuroll.

HOUSE. William O. Field, *Chairman;* Lawrence G. Coveney, *Assistant Chairman;* Mrs. Louis Bergmann, Mrs. Arthur L. Erlanger, J. Monroe Thorington, M.D., Walter A. Wood.

LIBRARY. Helen I. Buck, *Chairman;* Herbert J. Kothe, Thomas A. Mutch, James W. Walsh, Jr.

MEDICAL. William E. Siri, *Chairman;* Benjamin G. Ferris, Jr., M.D., L. Bruce Meyer, M.D., Nello Pace, Roger S. Whitney, M.D.

MEMBERSHIP. John C. Oberlin, *Chairman;* Linwood M. Erskine, Jr., Henry S. Hall, Jr.

MOUNTAIN AND COLD WEATHER TRAINING. John C. Case, *Chairman;* Robert H. Bates, A. L. Washburn.

NOMINATING. Henry S. Kingman, *Chairman;* William R. Hainsworth, Polly Prescott.

PHOTOGRAPHIC EXHIBIT COMMITTEE. Harvey Platts, *Chairman;* David Michael, Jr., and Robert W. Swartz.

RESEARCH. Mrs. Philip D. Orcutt, *Chairman;* William O. Field, William R. Latady.

SAFETY. Benjamin G. Ferris, Jr., M.D., *Chairman;* James Bonner, Ome C. Daiber, John F. Fralick, Ralph W. Johnson, Hans Kraus, M.D., Edward R. La Chapelle, Russell McJury, Maynard M. Miller, John de la Montagne, William L. Putnam, Evelyn Runnette, Raymond E. de Saussure, William E. Siri, Hassler Whitney.

All communications should be addressed to the Clubhouse. Back numbers of most issues of the *American Alpine Journal* may be had on application. The price of the current issue is $3.00 per copy.

Information concerning possible articles and other material for next year's issue should be forwarded to the Editor, *The American Alpine Journal,* 113 East 90th Street, New York 28, N. Y., before December 1st of the current year.

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CLUB

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